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ENDANGERED SPECIES

Technical Bulletin

Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

Early Hearings Begin Reauthorization Process

Oversight hearings to examine the implementation of the Endangered Species Act of 1973 were held by the U.S. Senate on December 8 and 10, 1981. Testimony received at those sessions, and at hearings to be conducted by the U.S. House of Representatives in early 1982, will assist the 97th Congress with the pending reauthorization of the Act.

Before May 15, 1982, both the House and the Senate will have completed their analyses of the Act and, most likely, will have developed draft legislation to amend it, as needed. Final legislation should be signed by October 1, 1982, the expiration date of the current Act.

Robert A. Jantzen, Director of the U.S. Fish and Wildlife Service (FWS), was the first person to testify before the Senate Subcommittee on Environment and Public Works. Jantzen reported on FWS's progress in implementing the Act and, in particular, the Endangered Species Act Amendments of 1978 and 1979. He promised that specific recommendations regarding possible new amendments to the Act would be made to Congress by the Department of the Interior following completion of the internal review of the legislation then underway. Ronald E. Lambertson, Associate Director-Federal Assistance and Endangered Species Program Manager, joined Jantzen in presenting the testimony.

Implementation Since Amendments

FWS testimony focused on three areas of change mandated by the 1978 and 1979 amendments—(1) listing, (2) recovery, and (3) consultation. Jantzen reported that FWS and the National Marine Fisheries Service (NMFS) had published joint final regulations which formalize the requirements of the amendments as they relate to Section 4 of the Act (listing). In order to respond to the requirements for economic analysis of Critical Habitat designations, Jantzen reported that an economic staff has been added to the Office of Endangered Species and that instructional guidelines and training have been carried out so that staff biologists can prepare most analyses.

Another major change made by Congress in the Act was to require the Department to develop a recovery plan for all listed species, unless it is determined that such a plan will not promote the conservation of the species. Jantzen reported that FWS now has 44 approved plans, 23 agency drafts, and 24 technical drafts and that the major portion of the work in this area has occured since November 1979. He said that FWS hopes to have at least 40 plans submitted for approval in fiscal year 1982.

The third major change made by Congress in the Act concerned the consultation process under Section 7. The intent of Congress in amending the Act in 1978 and 1979 was to provide for more direct involvement of FWS at the initial stages of Federal planning, so that potential problems could be surfaced at the earliest possible time in order to avoid delays. Jantzen reported that as a result of the changes "the consultation process is going very smoothly in the vast majority of cases." He stated that while new regulations incorporating the Section 7 changes made in 1978 and 1979 have not yet been published in the *Federal Register*, either letters or memoranda have been sent to all Federal agencies informing them of changes required by the Act.

Critical Habitat Issue

The second portion of Jantzen's testimony was a summary of the review process in which the Department was concurrently involved. (See accompanying story on Interior's review.) One of the issues which surfaced during the review and about which Jantzen spoke was whether it is desirable to continue to designate Critical Habitat—a provision of the Act intended to assist Federal agencies in identifying the location of protected species. "The concept of Critical Habitat has often been perceived by the public," Jantzen said, "as tantamount to the designation of an invi-

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Department Completes Review Of Endangered Species Act

A thorough statutory and regulatory review of the Endangered Species Act of 1973, conducted by the Department of the Interior during the final quarter of 1981, was recently completed. Recommendations resulting from the review will be submitted to the Office of Management and Budget around the middle of January 1982.

The review was initiated on June 1981 when the Service began collecting information in preparation for Spring 1982 Congressional reauthorization oversight hearings on the Act. In August 1981, when Vice President Bush included the Act in a list of regulations to be reviewed under Section 3(i) of Executive Order 12291, the Department combined the regulatory review process required by the Order with the reauthorization preparation already under way.

The working group which accomplished the review executed a work plan which was approved by the Office of Management and Budget in mid-September. The plan included a list of approximately 80 issues identified by the group itself, along with additional issues identified as the review continued.

An initial request for public comments was included in a *Federal Register* notice, published September 18, 1981. Letters transmitting this notice and copies of E.O. 12291 were sent to Federal agencies, State fish and game agencies and private organizations. Regional offices of the Service were also asked to comment. Eighty comments were received in response to the *Federal Register* notice.

By far, most States (24 responses) supported retention of the Act and continuing or increased enforcement of its provisions. Dissatisfaction with the provision or administration of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which is implemented by the Act, was the subject most discussed

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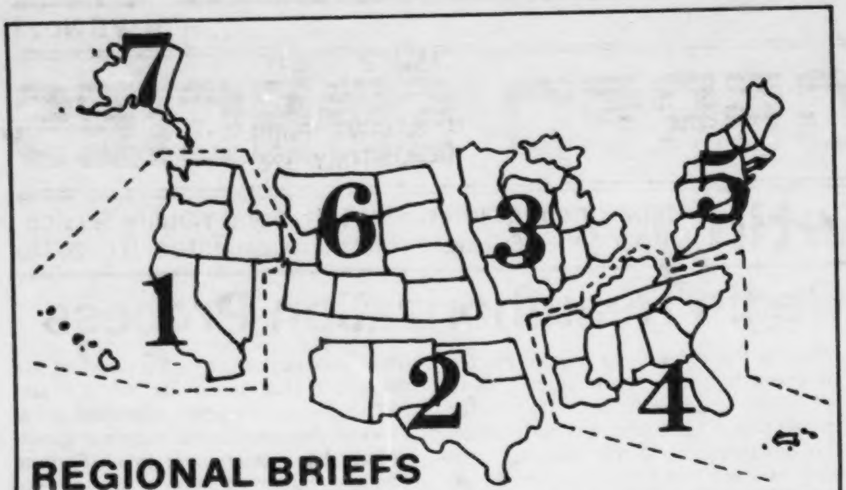

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of December:

Region 1—Surveys of light-footed clapper rails *(Rallus longirostris levipes)* in Baja California, Mexico, were begun during the summer of 1981. Barbara Massey and Dick Zembel censused (using vocalization mapping during evenings) one-fourth of the suitable habitat at El Estero, Ensenada, and heard 68 pairs of rails. In less than one-fifth of the saltmarsh at Bahia de San Quintin they heard 107 pairs. Projection of these partial counts yields a rough minimum estimate of 800 pairs of clapper rails residing in the two saltmarshes. Massey and Zembel accomplished this field work on their own time and initiative.

On December 1, 1981, the Boise Area Office hosted a meeting of the Northern Rocky Mountain Wolf Recovery Team members, wolf researchers, and representatives of Idaho sheep and cattle associations. The meeting provided an informal means of keeping livestock managers up-to-date on the wolf situation in Idaho, and of allowing livestock representatives to ask questions and express their concerns about wolves and wolf recovery plans.

A population of more than 5,000 plants of *Euphorbia skottsbergii* var. *kalaeloana* was recently discovered on the Naval Air Station at Barbers Point, Oahu, Hawaii. The discovery occurred during a Corps of Engineers contracted census of the taxon. Prior to the survey, it was believed that the total number of the species was approximately 1,000, one sixth of the now known population. The plant was proposed for listing as Endangered in the September 2, 1980, *Federal Register*.

Endangered species teams from Boise and Billings met in Jackson, Wyoming, with people interested in bald eagles of the Yellowstone Ecosystem. At this meeting the Yellowstone Ecosystem Bald Eagle Working Group was formed.

Region 2—Jack Woody and David Bowman attended the annual Kemp's Ridley Sea Turtle Project review at the Gladys Porter Zoo in Brownsville, Texas. Representatives from the National Marine Fisheries Service, National Park Service, Texas Parks and Wildlife Department, and Instituto Nacionale de Pesca of Mexico also attended. Events and progress to date were reviewed and tentative plans for the coming season were made.

Economic and biological data for the possible listing of the bluntnosed shiner *(Notropis simus)* and the Little Colorado River spinedace *(Lepidomeda vittata)* is being gathered by the region. Letters of inquiry are being sent to State game and fish departments, irrigation districts, clearing houses, and Federal agencies possibly having projects in Arizona and New mexico, the States where the two species are found.

Region 5—A technical draft of the Chittenango Ovate Amber Snail *(Succinea chittenangoensis)* Recovery Plan was completed by New York State biologist Patricia Riexinger and submitted to the regional office on New Year's eve.

Bald eagle shooting losses were up sharply in Maine in 1981. An intense public education effort is being planned

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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jointly by State and Federal governments and the University of Maine, Orono. The effort will include some television spots about the eagle's plight.

Special recognition is given to the Nature Conservancy (TNC) because of their efforts to protect several unlisted candidate species. *Isotria medeoloides* (small whorled pogonia) and *Eupatorium leucolepia* (white bracted-boneset) are two examples of plants that now have more secure habitat (in New Jersey and Massachusetts, respectively) because of TNC's untiring efforts.

Region 6—The Peregrine Fund at Fort Collins, Colorado, hatched 73 American peregrin falcons *(Falco peregrinus anatum)* eggs in 1981. This resulted in the attempted release of 59 young at 16 sites in Colorado, Utah Wyoming and Montana. At least 49 of the birds were alive after they had been flying for about one month. Predation by golden eagles *(Aquila chrysaetos)* and great horned owls *(Bubu virginianus)* was the major cause of the loss of released birds.

At least 11 peregrines released in previous years returned to release sites. Of these, two adult/subadult pairs were seen in Colorado. The released birds are not known to have produced any young.

EARLY HEARINGS

Continued from page 1

olate preserve, which would forbid or curtail all human activities in the designated area. Because of this misperception, there has often been strong resistance to Critical Habitat designations by local residents and commercial interests." In response to this concern, Congress in 1978 required that an analysis be performed prior to the establishment of Critical Habitat to determine the economic impact of the designation. Jantzen summarized the situation saying, "As a result of public resistance and the analysis requirements of the 1978 amendments, Critical Habitat designation has added significantly to the complexity of the listing process. Some commentors feel that due to these problems, Critical Habitat should be eliminated, while others feel that it should be retained."

William H. Stevenson, Deputy Assistant Administrator for Fisheries (NMFS), testified on behalf of the Department of Commerce regarding NMFS's activities conducted under the Act. Stevenson summarized his testimony by stating, "I believe that the Endangered Species Act has worked well with respect to marine species. Although some issues remain, generally we expect to resolve them administratively."

In addition to testimony from Federal agencies, Senator John H. Chafee (R-RI), subcommittee chairman, and Senator George J. Mitchell (D-ME) received testimony from 14 other witnesses representing State governments, private industry, conservation groups, and academia.

Allegations That Act Causes Conflict

Testimony from groups representing interests in the Western States, in particular, portrayed the Act as a source of conflict and as having critical flaws. The Western States Water Council, an organization of representatives appointed by the Governors of 12 Western States, and the Western Regional Council, a group said to represent the business community of the Intermountain States, expressed particular difficulty with implementation of Section 7 of the Act. These groups complained of added costs incurred by developers when projects were held up by the consultation process, of ill-defined consultation steps, and of lack of consideration given to the "action agency's" primary purpose. Both groups also expressed concerns over what they regard as a secondary position traditional State water rights seem to be taking to the Fish and Wildlife Service in the Service's Section 7 biological opinions. The Water Council recommended that Section 2 of the Act be made more flexible—that it be amended to state that "the conservation of endangered species should not be automatically undertaken at all costs, but should be considered in concert with other national goals." In particular, they recommend that the Act be amended to expressly state that it will not be used to allocate water, but that such allocations will be accomplished under State laws.

Counter Testimony

The above position of the Western States groups was countered by the testimony of 20 conservation groups. The Environmental Defense Fund (EDF), National Audubon Society, National Wildlife Federation, and Society for Animal Protective Legislation presented testimony at the hearings; EDF and Audubon represented a coalition of 18 conservation organizations.

The National Audubon Society stated in its testimony that over a 3-year period during which the Fish and Wildlife Service conducted 9,673 consultations with Federal agencies on proposed actions, only 154 of them (1.6%) were found to potentially jeopardize. (Almost all of the 154 jeopardy opinions were able to be resolved through the development of reasonable alternatives or through project modification.) The National Wildlife Federation testified that, in terms of specified time frames, the Section 7 consultation process was working well. The FWS averaged 78 days (2.6 months) per consultation, less than the 90 days allowed by law. The Federation testified that the preparation of a few opinions did exceed the 3-month period, but that was infrequent and usually occurred where an extension had been mutually agreed to by the Service and the consulting agency.

Mr. Kenneth Berlin, speaking for the National Audubon Society, countered the Western State's water rights issue. "The Endangered Species Act cannot stop the extinction of water dependent species if there is an inadequate flow of water available to them—there is no economic justification for such extinctions."

The conservation groups made an overall plea for continued strong endangered species legislation; however, they were critical of the 1978 and 1979 amendments to the Act, saying that they "took too much time to implemement." Additionally, they expressed considerable dissatisfaction with the lack of actions completed under Section 4 (listings and Critical Habitat determinations) during 1981. They suggested that listing actions be based solely on biological data and that economic considerations, such as those called for by the 1978 amendments, be considered later, if needed, during consultations or exemption procedures.

Academia For Species Diversity

Three members of the National Academy of Sciences, Dr. Edward O. Wilson of Harvard University, Dr. Thomas Isner of Cornell University, and Dr. Peter Raven of the Missouri Botanical Garden, all gave strong testimony in support of the conservation of so called "lower life forms." Wilson called for a more comprehensive conservation ethic and an awareness of each species as a part of our natural heritage. Raven called the destruction of species for short-term economic gain a "radical position" and gave an example of recent research with the plant genus *Oenothera* which could hold a key to coronary disease cures. Isner reminded the subcommittee that 40% of our modern day drugs contain substances found in plants, and that there is no end to the potential for additional discoveries. Thus far, he pointed out, only 2% of known plants have been tested even partially for their chemical content. Commenting on the rate of species extinction, Isner stated that we could expect to lose one-fourth of the world's species over the next 20 years. Dr. Stephen Kellert of Yale University testified on the attitudes of Americans toward endangered species conservation.

During the hearings, numerous witnesses reiterated the warnings of Under-Secretary of State James L.

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Western Hemisphere Convention: International Framework for Wildlife Conservation

Part II in a series on the endangered species activities of the Service's International Affairs Office.

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by Curtis Freese

More than 140 plants and animals on the United States List of Endangered and Threatened Species are found in the 31 nations of Latin America and the Caribbean. Many more vulnerable species are to be found on the endangered species lists that some of these countries have developed for themselves. To fulfill the Service's responsibilities as one of 17 parties to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, the Western Hemisphere Program of the Service's International Affairs Office is cooperating in a variety of activities with countries throughout the Latin American and Caribbean region. Included are projects to assess the status of endangered species, work toward the recovery of endangered populations, curb the threats to additional populations and species, and enhance the capabilities of wildlife institutions in those countries.

Because of geographical proximity, the U.S. and the Latin American/Caribbean region have much in common with regard to their flora and fauna, the problems and threats that confront these resources, and the necessary conservation measures. There are, of course, many species, including endangered ones, whose geographic ranges encompass both the U.S. and countries of Latin America and the Caribbean. Certainly the most significant wildlife resources the U.S. shares with Latin America and the Caribbean, in terms of numbers, are the migratory animals. Migratory birds, constituting more than 330 species that move south every North American winter, are perhaps the most conspicuous. Other taxonomic groups, however, also are significantly represented among these shared migrants, including the Mexican free-tailed bat, monarch butterfly, endangered grey whale, and six species of marine turtles (all six listed by the U.S.).

Not so immediately obvious today are the numerous historical ties, established through biological evolution, that linked north to south. The taxonomic affinities from this linkage can be of tremendous importance for endangered species conservation, as exemplified by the role that the Andean condor is currently playing as a surrogate experimental animal in the recovery program for the much more endangered California condor.

Identifying the Problems

The problems facing threatened and endangered species in Latin America and the Caribbean are essentially the same as those confronting North American wild animals and plants—loss of habitat, excessive exploitation of populations, and environmental contamination. Habitat destruction ranks at the top of the list. The habitat that is disappearing most rapidly, tropical forests, also houses a greater number of species, including those currently endangered, than any other habitat in the region. Estimates are that 60,000 to 100,000 square kilometers (an area somewhere between the sizes of West Virginia and Virginia) are being lost annually in the New World tropics due primarily to the spread of agriculture and logging. Given the fact that many tropical species have very small geographical distributions, it is evident that thousands of tropical forest-dwelling species will be lost by the end of the century if present trends continue. Other habitats, such as wetlands and natural grasslands, are also being lost or greatly altered at unknown rates.

International commerce for the pet trade, hobby collectors, and animal products (such as skins), has led to critically low population levels of several species of parrots, macaws, cats, crocodilians, orchids, cacti, bromeliads, and other species in Latin America and the Caribbean. At the same time, subsistence hunting has drastically reduced populations of animals such as the larger primates and iguanas; selective logging has also reduced trees such as the endangered Guatemalan fir.

For large areas of tropical America, the first order of business in evaluating endangered species problems has to be an inventory of existing species. Indeed, in the world's tropical forests, it is estimated that perhaps only one sixth of all species have even been scientifically described and named. Therefore, in countries such as Paraguay, there is a push to catalog native flora and fauna. At the request of the Paraguayan government, the Service is cooperating with Peace Corps volunteers to provide technical assistance in developing a biological inventory, and in establishing their first national museum of natural history. (The Service has completed architectural plans for the new museum, and construction is expected to begin during 1982.) Service scientists are

Inside a Peruvian tropical hardwood forest. **Photo by C. Freese** making periodic visits to carry out inventory expeditions with Paraguayan counterparts and students who receive hands-on experience and training in basic field inventory, taxonomy, and curatorial techniques. A new species of lizard and several new insects have already been discovered. Through the help of the Service in obtaining other sources of international support for the project, several of the Paraguayan biologists will be coming to the United States in 1982 for more advanced training.

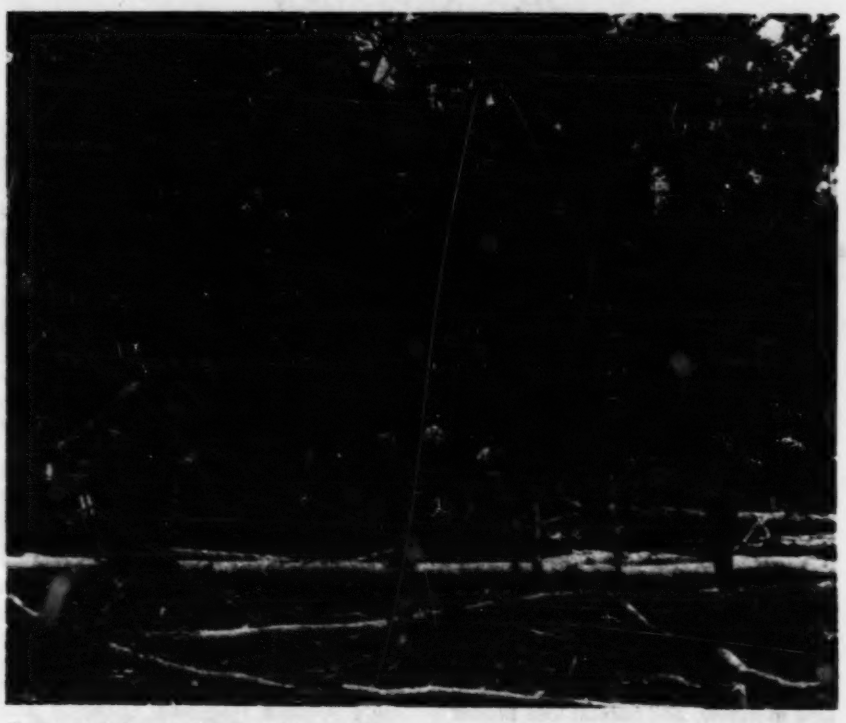
Training Wildlife Professionals

Because of the severe shortage of personnel in Latin America and the Caribbean trained in wildland planning and wildlife management, training is a high priority in our cooperative programs. We have developed what we anticipate to be an annual course on the function and management of wildlife refuges for Latin American/Caribbean wildlife and wildland professionals. In 1981, six trainees from Guatemala, Costa Rica, Panama, the Dominican Republic, Ecuador, and Brazil visited 10 national wildlife refuges in the U.S. and other Service facilities during this one-month course. The National Wildlife Federation and the World Wildlife Fund-U.S. provided important financial and technical support in this training effort.

The Service also participates in wildland training efforts organized by the Wildland and Watershed Project of the Tropical Agronomic Center for Research and Training, a Central American institution based in Costa Rica that provides assistance and coordination in conservation projects throughout the seven countries of Central America. By providing Spanish-speaking instructors and financial support, the Service has helped train more than 50 wildland managers from at least a dozen countries in the last 2 years.

Since destruction of habitat is the major threat to species survival in Latin America and the Caribbean, national wildlands programs are of high priority. These lands may be in the form of national parks, wildlife refuges, forest reserves, faunal production areas, or watershed reserves. The experience of the Service in managing the National Wildlife Refuge System is of considerable value to other countries that are establishing wildlands systems. For example, in response to a request from the Government of Costa Rica, the Service sent three specialists in refuge planning from Minnesota Valley NWR to that country to help them develop a master plan for their first national wildlife refuge, and to train Costa Ricans in planning techniques. This new refuge is habitat for the scarlet macaw, several iguanas, and the endangered Central American tapir, among other species. More than 85 species of migratory birds from the U.S. also have been sighted.

Another Service specialist responded to Peru's request for help in drafting a preliminary development plan for its Pacaya-Samiria National Reserve in northern Amazonia. Some of the more notable species found there include the jaguar, ocelot, various parrots and macaws, at least three species of crocodilians, and ten species of primates.



Tropical deforestation is a big problem—loss of habitat and loss of species diversity.
Photo by C. Freese

Potential Economic Resources

As the interest in crocodilians in Latin America indicates, many countries view the consumptive use of animals and plants as a compatible and important tool in their conservation efforts. Perhaps the best known example is the vicuna in Peru. Vicuna populations in that country were at critically low levels only a few years ago, but an intensive conservation program has resulted in recovery to the point where controlled harvesting of the vicuna for its meat and valuable wool is again possible. This use, in turn, is important justification for the Peruvian government's continued conservation efforts.

New efforts are underway throughout the region to apply this concept of conservation through sustained yield, including the management of endangered species such as the Amazon River turtles for their eggs and meat, crocodiles for their skins and meat, marine turtles for their eggs, meat and other products, iguanas for their meat, and primates for biomedical research. For example, Ecuador is interested in establishing a research center to develop management technologies for the sustained yield harvest of Amazonian wildlife resources. The Service has provided technical expertise by helping to develop a proposal and plans for such a research station.

Recovery Program Research

Considerable joint research and management on endangered species has been conducted with Mexico's wildlife department, with some very notable successes. The masked bobwhite once occurred in southern Arizona, but up to a few years ago populations remained only in neighboring Mexico. Under the auspices of the U.S.-Mexico Joint Committee on Wildlife Conservation, a project was begun to capture some masked bobwhites in Mexico, transfer them to the Patuxent Wildlife Research Center for captive propagation, and then release them in rehabilitated, protected areas of their former range in Arizona. This objective has been accomplished, and the captive population at Patuxent is now supplying birds to Mexico for their own captive breeding and reintroduction program. The Mexican grey wolf, also once found in the southwestern U.S. but represented now in the wild by a small, diminishing population in northern Mexico, is the subject of a cooperative captive breeding proj-

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Buckley at the Strategy Conference on Biological Diversity, November 16, 1981. Buckley stated, "We are still too ignorant of ultimate consequences to understand in full the urgent need to protect even the most inconspicuous forms of life so that we do not diminish the rich variety of biological resources that continue to exist."

State Recommendations

The International Association for Fish and Wildlife Agencies (IAFWA), representing all the States, asked that Section 6 of the Act be amended to ensure at least minimum funding for State programs. (All funding for State programs has been eliminated from the fiscal year 1983 budget). Speaking for the IAFWA, Mr. William S. Huey reminded the subcommittee that a good Federal-State working relationship is essential to a successful endangered species program. (IAFWA was joined by the conservation groups in its request for sustained Section 6 funding.) Mr. Huey also made a recommendation to adopt language in the Act which would allow the States to introduce experimental populations of protected wildlife without "being penalized by Federal establishment of Critical Habitat and other protective features of the Act."

Justice Recommendations

Assistant Attorney General Carol E. Dinkins reported that during the 2-year existence of the Justice Department's Wildlife and Marine Resource Section, the lack of clarity in several sections of the Act has caused some interpretive confusion. She recommended for clarification: (1) the extent of permissible State regulation of Federally-listed species; (2) the meaning of "proper purposes" as it relates to exempted wildlife under the Act's "Grandfather Clause"—Section 9(b)(1), and (3) the necessity of "proving knowledge of violations" on the part of those possessing illegal wildlife under Section 9(a)(1)(D) and 9(c)(1).

Dinkins pointed out that, in contrast to the citizen suit provision in other environmental laws, Section 11(g) of the Act allows private parties to sue to enjoin any violation of the Act. (Most environmental laws generally limit enforcement rights to enjoin violations of specific statutory prohibitions.) Dinkins stated, "It (the Act) permits suits not only to enjoin the prohibitions of Section 7 and the consultation requirement of Section 7, but also to set aside regulatory actions taken under the Act." Speaking for EDF, Bean urged that this right of citizens to initiate lawsuits "against those who violate or fail to enforce the Act" be preserved.

Bobcat Issue

Dinkins also warned that the November 1981 interpretation of Section 8(a) by the District of Columbia Court of Appeals may be contested. This interpretation held that the Federal government must have both a reliable estimate of State bobcat populations and information concerning the number to be killed in a particular season before allowing bobcat exportations, even though neither the Act nor the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has specific export standards.

State fish and game agencies, represented by IAFWA, expressed great difficulty with the "no detriment" finding as interpreted by the Court of Appeals ruling which required population estimates for export of species listed on CITES appendices in addition to the bobcat (i.e. lynx and river otter). IAFWA recommended that the Act be amended to allow a determination by the State agency permitting the harvest of a State managed Appendix II species to constitute a "no detriment" finding under Article IV of CITES. IAFWA was supported in this recommendation by the Wildlife Legislative Fund of America and the Pet Industry Joint Advisory Council. These parties joined in a second recommendation to amend Section 8 so that the United States would be mandated to take reservations under CITES procedures when substantial evidence indicates that domestic populations listed in the CITES appendices are not Endangered or Threatened. Stating a contrasting position, Christine Stevens cited the demise of the blue whale as a situation parallel to that of the bobcat and warned that "it is not easy to bring back a bobcat population once it has been too far depressed by trapping."

Comments of the Senator

Senator Chafee asked numerous questions during the 2 days of oversight hearings and gave strong support to the Endangered Species Act. When responding on the second day of hearings to the complaint that biological consultations and assessments took valuable time and considerable amounts of money, Senator Chaffee responded: "Yes, there are delays. But endangered species are finite—when they are gone, that's the end. Sometimes there might be dollar costs; the balance works two ways. We must weigh conservation against costs . . . . If we err, we must err on the side of attempting to preserve species."

Florida Panther Recovery Plan Approved

On December 16, 1981, the Service's Director approved a recovery plan for the Florida panther *(Felis concolor coryi)*. The overall goal of the plan is to prevent the species' extinction and to reestablish viable populations in as much of its former range as feasible.

The present status of the Florida panther over most of its historical range is poorly known. The animal once ranged from eastern Texas east to Florida and as far north as Arkansas and parts of Tennessee and South Carolina. Today there is consistently documented evidence of the species continued presence only from the Fakahatchee Strand, Big Cypress National Preserve, and Collier-Seminole State Park areas. Other reports indicate that the panther may still exist in other parts of Florida and in portions of Arkansas and Louisiana.

The decline of the Florida panther probably began with the early settlers who attempted to destroy them at every opportunity because of livestock losses and fear of the animals. Although legally protected since 1958, illegal kills, highway mortality, and habitat loss probably continue to depress the population below potential carrying capacity.

Recovery Efforts

The basic factor limiting the conservation and management of the Florida panther is lack of information on the species' status and distribution. To remedy this situation, the plan recommends additional field investigations, as well as the establishment of a Florida Panther Record Clearinghouse in each State within the species' former range where all available data would be collected and reviewed. (The Florida Game and Fresh Water Fish Commission has already established a panther clearinghouse—see the July 1981 BULLETIN for more information.)

The plan further recommends that once existing populations are located and have been studied to determine habitat requirements, habitat necessary to maintain these populations should be protected. Public education is established in the plan as an important follow-up task to gain public acceptance for the recovery efforts. Implementation of the plan will be initiated by the Service's Atlanta Regional Director and carried out through the Atlanta Regional Endangered Species Office.

Cactus Trade Meeting

by Michael Bender

A meeting to discuss the cactus trade, its impacts on wild populations, and potential conservation measures was held in Tucson, Arizona, December 7–9, 1981. Among those attending were representatives of Federal and State agencies, universities, private conservation groups, commercial cactus growers, and the Arizona-Sonora Desert Museum. The conference was sponsored by the Service's Albuquerque Regional Office, and was planned as the first in a series of meetings on the cactus trade.

One of the main purposes was to create a better understanding among all those involved in cactus trade and conservation of the various laws, international treaties, and regulations now in effect. Presentations on the varied protection offered cacti by the Endangered Species Act, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere, and the recent amendments to the Lacey Act (see the December 1981 BULLETIN) were made by the Service. Explanations by State representatives of cactus laws and programs in Arizona, New Mexico, and Texas followed.

Discussions held near the end of the meeting focused on several points of special concern. There was general agreement that the condition of many cacti populations in the wild continues to deteriorate despite existing programs, but it was also recognized that a much better data base is needed to facilitate regulatory decisions (especially those conservation measures required under the Act, the Western Hemisphere Convention, and CITES). Another topic of interest at the meeting was the possibility of devising a national cactus trade recovery plan, covering all native and foreign cacti subject to U.S. trade. Under the umbrella of such a recovery plan, common cactus problems such as research on artificial propagation to supply trade demand, enforcement, permits, salvage operations and rescue centers, and a variety of other areas could be coordinated as the trade supplement to individual species recovery plans.

Because enforcement of Federal and State cactus protection laws, already so difficult, is likely to be effected by further budgetary and personnel reductions, the participation of commercial growers in cactus conservation programs was seen as increasingly important. It was reemphasized that a major part of the cooperative effort is expected to be public education on the dangers to wild populations of collecting from the field, and the importance of buying cacti only of cultivated origin.

RULEMAKING ACTION

December 1981

INTERSTATE TRADE IN Kangaroo Imports Authorized

A final rule which authorized the importation for commercial purposes of hides and parts of the red kangaroo *(Megaleia rufa)*, the eastern gray kangaroo *(Macropus giganteus)*, and the western gray kangaroo *(Macropus fuliginosus)* was published by the Service on April 29, 1981. In a December 31, 1981, notice the Service has interpreted this action as also authorizing interstate commerce in parts and products of these three kangaroo species.

The prohibition against interstate commerce in the Endangered Species Act of 1973 [(50 CFR 17.40(a)] applies only to unlawfully imported kangaroo. Since importation of these three kangaroo species is now lawful, interstate trade in their parts and products is also lawful.

WESTERN HEMISPHERE

Continued from page 5

ect for reestablishing them in parts of their former range.

Researching the effects of pesticides on peregrine falcons and other migratory birds will begin in 1982 through the U.S.-Mexico Joint Committee. Possible contamination is also creating concern in agricultural areas of Costa Rica, where the Service is cooperating with government and university scientists in analyzing the eggs of wading birds for pesticide residues. Costa Rican scientists are currently initiating a research program on the brown pelican, and have requested the Service's assistance in analyzing eggs of this species.

Cooperation with Peru has been extremely important in carrying out one of the phases of the recovery program for the California condor. With the assistance of the Peruvian government, the Service is studying captive-born Andean condors released into the wild along Peru's isolated northern coast. Scientists hope eventually to apply the knowledge and techniques to future captive-bred California condors.

The Service is also participating in important research and management efforts for marine turtles in Latin America (including programs on both coasts of Mexico), particularly recovery of the Kemp's ridley. Research is also being conducted on the Olive ridley turtle along the Pacific coast of Costa Rica.

Technical Information Exchange

One of the least costly, but important and effective ways that the Service cooperates with other countries in the hemisphere on endangered species conservation is through the exchange of technical information. Access to published material data is often difficult in Latin America and the Caribbean; therefore, our office regularly sends technical information in the form of research reports, bibliographies, books, and other publications to some 20 countries in the region. Additional information is provided upon request. In return, we receive information from these countries which is of value to our own researchers and managers.

International cooperation of the type described above will become increasingly important in the future as countries of the Western Hemisphere strive to effectively use their limited resources in conservation efforts for the wild animals and plants we share. Because of the Service's wealth of expertise in wildlife research and management, and because this expertise is increasingly recognized and sought by wildlife institutions in Latin America and the Caribbean, the Service has a critical role in furthering this international effort.

New Publications

"Endangered and Threatened Species of Illinois: Status and Distribution," was published in January 1981 by the Illinois Department of Conservation. The volume contains 189 pages plus six appendices, forming a comprehensive scientific guide to endangered species of Illinois. Limited copies are available for distribution to those having a particular interest in the State's flora and fauna. To request a copy, write to the Endangered Species Program Coordinator, Division of Wildlife Resources, Department of Conservation, 605 Stratton Building, 600 North Grand Avenue West, Springfield, Illinois 62702.

"The Behavioral Ecology of the Komodo Monitor" by Walter Auffenberg reports the findings of a 13-month field study of the ecology and behavior of *Varanus komodoensis* (listed as Endangered under the Act). The study was conducted between July 1969 and July 1971 in the Lesser Sunda Islands group, Republic of Indonesia. The report (406 pages) is available for $45.00 from University Presses of Florida, 15 Northwest 15th Street, Gainesville Florida 32603.

Materials featured in the "New Publications" column are presented for information purposes only. The mention of non-Federal government publications does not imply concurrence with their contents or with the philosophies of the various publishers.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	U.S. & Foreign	Foreign Only	THREATENED U.S. Only	U.S. & Foreign	Foreign Only	SPECIES * TOTAL
Mammals	15	17	224	3	0	21	280
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	29	4	11	12	0	0	56
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	1	0	0	0	0	0	1
Insects	7	0	0	4	2	0	13
Plants	51	2	0	7	1	2	63
TOTAL	193	43	445	45	7	23	756

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 11 animals
9 plants

Number of Critical Habitats listed: 50
Number of Recovery Teams appointed: 68
Number of Recovery Plans approved: 45
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

December 31, 1981

DEPARTMENT REVIEW

Continued from page 1

by the States (14 responses). In most cases, State agencies disputed restrictions placed on international trade in certain U.S. species (notably bobcat, and river otter) or criticized the administration of the International Convention Advisory Commission (ICAC).

Other more general comments from the States included: (1) criticism of Federal involvement in areas of traditional State management authority; (2) the reinstatement and greater continuity of funding for the State grant-in-aid program under Section 6 of the Act; (3) the need for continued compliance by Federal agencies with Section 7 and the need for greater State involvement in the Section 7 consultation process; and (4) the inappropriateness of the present economic analysis procedure required by Section 4 in the listing process.

Federal agencies most frequently commented on consultation procedures under Section 7, suggesting various technical or substantial changes in the proposed Section 7 implementing regulations.

Most environmental and scientific organizations (11 responses) supported retention and effective implementation of the Act. Two scientific groups urged a relaxation of permit procedures as they apply to museum specimens. These groups disputed the appropriateness of economic and other impact analysis as a prerequisite to species listings.

Eleven responses were received from industrial and development interest groups. The most frequent specific concern among this group was that species only be listed based on adequate documentation, and that the Act not be used to further political goals.

Comments from several members of the academic community expressed disagreement with the new Service priority system which directs effort to vertebrate species before the so called "lower life forms" (i.e. plants and invertebrates). One commentor questioned the basis upon which the Service is emphasizing recovery efforts over listing efforts.

A summary of the issues which surfaced during the review was printed in the January 13, 1982, *Federal Register*.

January 1982 Vol. VII No. 1

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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Recovery Plan Approved for Clear Creek Gambusia

The Clear Creek Gambusia Recovery Plan was approved by the Service on January 14, 1982. The Rio Grande Recovery Team which includes members from Texas Parks and Wildlife Department, New Mexico Department of Game and Fish, University of Texas, Oklahoma State University, University of Nuevo Leon and the Service prepared the plan.

The Clear Creek gambusia (*Gambusia heterochir*) was first collected on February 22, 1953, in Wilkinson Springs on the Clear Creek Ranch in Menard County, Texas. Listed as Endangered in 1967, it is only known to occur in the headwaters of Clear Creek located on the Clear Creek Ranch. The recovery plan identifies the major threats to the species as genetic and environmental competition with mosquito fish (*Gambusia affinis*) and potential development of its extremely restricted habitat.

Originally Clear Creek was a clear spring run that freely flowed about 5 km to its confluence with the San Saba River. Upper Clear Creek, which consists of a series of interconnected limestone springs originating from Edwards Aquifer, has been altered extensively for irrigation and domestic uses. Prior to 1900, a low, earth-concrete dam was built about 75 meters downstream from the headsprings. Three additional dams were built downstream from the original dam in the 1930's, ponding water to the base of each subsequent dam.

The Clear Creek gambusia has specific habitat requirements which restrict it to that part of Clear Creek with clear, sternothermal, low pH (6.1–6.5) waters having abundant aquatic vegetation composed mainly of an endemic, undescribed form of *Ceratophyllum* sp. Although at one time it may have been more widespread in the Clear Creek drainage, extensive collecting in 1956 and 1957 found this fish confined almost entirely to the spring-fed uppermost pool.

Where the Clear Creek gambusia and mosquito fish occur together, hybridization and competition for food occur. The mosquito fish generally associates with a eurythermal relatively alkaline environment in contrast to the requirements of the Clear Creek gambusia. However, its preference for warmer water causes a winter migration towards the head-spring where the Clear Creek gambusia is restricted. The first dam below the head-spring deteriorated over the years and has periodically allowed invasion of mosquito fish into the habitat of the Clear Creek gambusia. Repairs to the dam which were funded by the Service and carried out by recovery team members and associates in August and September 1979 have restored this barrier and at least temporarily blocked further immigration by mosquito fish.

A collection of rainwater killifish (*Lucania parva*) in Clear Creek in 1980 documents a recent new introduction and additional potential threat. Although a brackish water species, it is expected to reproduce in Clear Creek and may compete for food and cover with the Clear Creek gambusia.

The Wilkinson family, landowners of the Clear Creek Ranch, have played a major role in conservation efforts for the species and have demonstrated a high level of environmental concern for the perpetuation of this fish. However, the ranch is presently for sale and the concern of future landowners cannot be predicted.

Recovery tasks identified by the plan for the recovery of the Clear Creek gambusia include further research into its biology, ecological requirements, and competition with the mosquito fish and rainwater killifish; protection of the headsprings habitat; maintenance of a captive population; possible restoration of the original habitat (i.e. the entire stretch of Clear Creek); and public information.

Implementation of the recovery plan will be initiated by the Service's Albuquerque Regional Director and carried out through the Albuquerque Regional Endangered Species Staff. Further information on the Clear Creek gambusia recovery effort can be obtained by contacting the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87130 (505/766-2321).

Pupfish Removed from Endangered Species List

After a review of all available data, the Service has determined the Tecopa pupfish (*Cyprinodon nevadensis calidae*) to be extinct and has, therefore, removed it from the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 1/15/82). This action discontinues protection for the fish and its habitat provided by the Endangered Species Act of 1973, as amended.

The Tecopa pupfish, a tiny fish only about 1.5 inches long, was described in 1948 by Dr. Robert Rush Miller from the outflow streams of two springs (north and south Tecopa Hot Springs) north of the town of Tecopa in southern California. During the 1950's, remodeling and landscaping of the hot spring bathhouses resulted in the rechanneling and combining of two spring outflows, which in turn created unfavorable habitat for the pupfish.

The effects of habitat alteration, possibly combined with competition and predation from introduced fishes, caused such a precipitous decline in the population by 1969 that the fish was listed as Endangered by both the Federal and State governments in 1970. By 1972, it was reported to no longer occur at the type locality, and surveys in 1977 failed to locate any other population.

A proposal to remove the Tecopa pupfish from the Federal list of Endangered species was published in the *Federal Register* on July 3, 1978. The California Department of Fish and

Continued on page 7

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REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of January:

Region 1—An artificial pond population of the Endangered Mohave tui chub *(Gila biocolor mohavensis)* at Fort Soda, California, recently was extirpated. The cause of the die-off, which did not affect a nearby natural lake population of the chub, is unknown.

The Sacramento Area Office endangered species staff met with the remaining California Department of Fish and Game Endangered Species Staff to coordinate programs for the coming year. Because of no new Section 6 funding in Fiscal Year 1982, California's Endangered Species Program will be greatly reduced. State biologists are resigning from Recovery Team Leader positions on at least two recovery teams, and the emphasis of staff time will be on processing State endangered species permits.

The final draft of the Southern Sea Otter Recovery Plan has been approved by the Director.

The Sacramento office has released a report on the results of the California mid-winter bald eagle surveys, 1979–1981. Approximately 700 to 900 bald eagles were counted annually. The California portion of the Klamath Basin supported almost half of the eagles in the State. Manmade reservoirs are the second most important habitat, supporting approximately 37 percent of California's bald eagles.

A revised edition of the *Bald Eagle Management Guidelines: Washington-Oregon* was issued in December 1981. The guidelines, created for use by landowners and land managers, describe restrictions in activities and management recommendations that should be applied around bald eagle nest and roost sites. The guidelines are advisory only, and past editions have been well received by the numerous private and governmental land managers who oversee bald eagle habitat in Washington and Oregon. Single copies may be obtained from the Area Manager, U.S. Fish and Wildlife Service, 2625 Parkmont Lane, Olympia, Washington 98502.

Region 2—Recently, 146 adult razorback suckers *(Xyranchea texanus)* were moved from Lake Mohave to the Dexter National Fish Hatchery as part of a cooperative program with the States of Arizona and New Mexico. Over one million eggs have been produced at Dexter, with several million more expected. Young razorbacks from these eggs will be stocked in the wild, or made available to the States for rearing or stocking in lieu of listing the species. (For more on the stocking program, see the September 1981 BULLETIN.)

Region 4—During the January meeting of the Columbia Dam Coordination Committee, the Tennessee Valley Authority (TVA) reported completion of its 2-year field study, which was designed to gather information for its Cumberlandian Mollusk Conservation Program. An evaluation of the distribution, host fish requirements, habitat, and potential translocation sites was conducted for two listed species, the Cumberland monkeyface pearly mussel *(Quadrula intermedia)* and the birdwing pearly

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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RULEMAKING ACTIONS—JANUARY 1982

Leopard Reclassified as Threatened in Southern Africa

After a lengthy review, the leopard (*Panthera pardus*) has been reclassified by the Service to Threatened in part of southern Africa (F.R.1/28/82). The change in status under the Endangered Species Act affects populations in Gabon, Congo, Zaire, Uganda, Kenya, and all African countries to the south. It will remain classified as Endangered in all other parts of its range, and leopards everywhere will be retained on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). A special provision of the final rule allows the importation of sport-hunted trophies legally taken from the reclassified populations, under the terms and conditions imposed by CITES. The importation of leopard products for commercial purposes, including the fur trade, was always the main threat to the species, and will continue to be prohibited.

Background

The leopard is the most widely distributed species of cat, occurring throughout most of Africa, and from Asia Minor to China, Korea, Japan, and Java; it is also found in India, Sri Lanka, and southeast Asia. Widespread poaching and overexploitation of this cat for the fur trade, especially during the late 1960s, created an enormous drain on wild populations and led to its original listing in 1972 as Endangered under the Endangered Species Conservation Act of 1969.

On the basis of three major studies on the leopard conducted since the 1972 listing, which indicated that populations are stable or increasing in most sub-Saharan countries, the Service proposed on March 24, 1980, that those populations be reclassified to Threatened (see April 1980 BULLETIN). The

Continued on page 6

CITES NEWS—January 1982

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director-Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S. Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

Service Proposes Removal of Bobcat from Appendix II

The Service announced its determination that the bobcat (*Lynx rufus*) is inappropriately included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and its decision to submit a proposal to remove United States and Canadian populations from Appendix II of CITES (F.R. 1/11/81). A preliminary notice which announced the intent of this proposal and requested public comments was published earlier (F.R. 9/14/81).

During the comment period for the September 1981 notice, the Service received a total of 15 letters from persons and organizations: 12 in favor of removal of the bobcat from Appendix II of CITES and 3 opposed. Nine comments in favor of delisting were from State wildlife agencies of Alaska, Alabama, Arkansas, California, Florida, Nevada, New Mexico, Tennessee, and Texas. The Montana Wool Growers Association, the National Wildlife Federation, and the Texas Sheep and Goat Raisers Association also commented in favor of delisting. Comments against delisting were submitted by the Animal Protection Institute of America, the Defenders of Wildlife, Inc., and the Humane Society of the United States.

Defenders of Wildlife was the only group to submit detailed reasons for their position on the proposal. The Service responded in the January notice to each of Defenders eight points of contention. (Please consult the *Federal Register* [Vol. 47, No. 6, pp. 1242–1246] for the text of these responses.) The same document includes a summary of available information about the bobcat and a discussion of

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Bobcat Rule Suspended

A final rule (F.R. 10/14/81) authorizing the export of bobcat (*Lynx rufus*) taken during the 1981–82 season is suspended by the Service for a 6-month period (F.R. 1/12/81). This action, taken to conform with the U.S. District Court injunction prohibiting the Service from authorizing the export of bobcat after July 1, 1981, became effective January 12, 1982.

On February 3, 1981, the District Court for the District of Columbia found the Office of the Scientific Authority's (OSA) guidelines for allowing export invalid and issued an injunction which prohibited the Service from authorizing export of the species under CITES. In light of this, the Service postponed the effective date of its October 1981 final rule for 60 days while it sought vacation of the injunction. However, on December 15, 1981, the District Court denied the motion of the Service to vacate the injunction on grounds that OSA failed to promulgate guidelines consistent with a previous ruling by the U.S. Court of Appeals.

Accordingly, the Service remains under court injunction prohibiting the export of bobcat and suspends the October rule for 6 months. Further notice concerning the export of bobcat will be provided when information becomes available. (See the November 1981 BULLETIN for more information on the October 1981 rule.)

TENNESSEE STATE REPORT:

Tennessee Wildlife Resource Agency

Cooperative Efforts Assist State

Very hot weather and bothersome mosquitos which plagued Reelfoot Lake in northwestern Tennessee this summer did little to squelch the enthusiasm of Dr. and Mrs. Arlo Smith, volunteers from the Tennessee Ornithological Society (TOS) and retirees from Southwestern University in Memphis. On their own time and at their own expense, this couple set up camp close to an observation tower at Reelfoot on June 22, 1981, and set about implementing an eagle hacking project which they had carefully planned in conjunction with the Tennessee Wildlife Resource Agency (TWRA).

The Smiths were given custody of three eaglets which were delivered to TWRA by the Fish and Wildlife Service and the Missouri Department of Conservation for the purposes of the project. (All three birds had been blown from nests in Minnesota and Wisconsin; the Wisconsin eaglet had received interim care at the University of Minnesota's raptor rehabilitation center.) TWRA placed the eaglets in an artificial nest at Reelfoot and commenced daily feeding. Dr. and Mrs. Smith assisted with feeding and monitoring the eaglets for 7 weeks. The Smiths were relieved on weekends by 11 other members of TOS who, in pairs, continued the feeding and observation procedures.

Each day members of TOS climbed the 54-foot ladder up the side of a cypress tree in order to enter the Observation Room. Here they spent long hours observing the eaglets which were on a hacking platform in a second cypress 90 feet away. The observers recorded information such as excitability, aggression, intimidation, alertness, wing-flapping, growth, preening, and posture. On August 6, the eaglets were released from the hacking platform.

The eaglets apparently migrated from the general area since radio contact with the birds was lost after 6 days of release. On December 15, the Wisconsin eaglet was found in South Dakota, injured by a trap from which it had been released. It was returned by Service employees to Dr. Patrick Redig at the University of Minnesota center. Upon determining that the eagle could not recover, Redig euthanized it. The whereabouts of the other two eaglets is unknown.

One of the Reelfoot eaglets—just released from the hacking platform on August 6, 1981.

Photo by Tennessee Wildlife Resources Agency

Valuable data and experience was gathered through this project, and TWRA has hopes that through additional similar efforts nesting eagle populations can be re-established in Tennessee. No successful nesting has been known to occur in the State since 1961, when eagles nested at Reelfoot.

In addition to working with the Reelfoot project, TWRA and the Tennessee Valley Authority (TVA) have cooperated in another hacking project at TVA's Land-Between-the-Lakes. In 1980, when several eaglets became available to the State sooner than anticipated, TVA had the necessary resources to construct hacking and observation towers on short notice and eventually hacked both birds. In 1981, three captive-bred eaglets (two from Patuxent Wildlife Research Center and one from Columbus, Ohio Zoo) were hacked from the Land-Between-the-Lakes operation.

The osprey (*Pandion haliaetus*), listed for protection by the State, has also undergone a decline in Tennessee. However, 5 years ago it began making a comeback and in 1981, there were five known nests. A total of forty-seven 6-week old ospreys have been introduced from the Chesapeake Bay (Maryland and Virginia) at 15 hacking platforms across Tennessee in a cooperative program with TVA. Members of TOS and others volunteered for daily feedings of the introduced ospreys.

The Tennessee Program

In 1974, the Tennessee State legislature passed the "Tennessee Nongame and Endangered and Threatened Wildlife Species Conservation Act" and assigned responsibility for its implementation to the Game and Fish Commission. During the same year, the Commission's name changed to TWRA, in order to reflect the agency's broader responsibilities. From 1974 through 1977, Tennessee's nongame and endangered species program (NG–ES) was implemented by one biologist, William Yambert. During 1978, the NG–ES program was handled by three full-time biologists: William Yambert, Robert Hatcher, and Thomas Grelen. Since early 1979, the program has been coordinated by Hatcher.

Regarding the hard work and enthusi-

Photo by W. Mike Howell & Fred Cox

This 3-inch fish is confined to a single manmade pond and a few headwater streams of eastern middle Tennessee.

asm of the Smiths and other members of TOS, Hatcher recently expressed gratitude: "We are fortunate to have many capable and interested people like the Smiths to help us with our endangered species needs. Many of our conservation efforts are carried out completely, or in cooperation with TWRA, by private citizens, conservation groups, Federal government agencies, and other State agencies. We work especially closely with the Tennessee Department of Conservation's Tennessee Heritage Program, and have cooperated in several projects with TVA, in particular."

Citizens Cooperate

TWRA has found that most landowners are receptive to protection of endangered species habitat if they recognize that they own something unique. TWRA has negotiated a total of 13 written cooperative agreements, and has about 10 more in progress. A number of oral agreements have also been established. TWRA has posted signs (see accompanying illustration) to alert passers-by about key habitat areas and to request their cooperation.

A very important cooperative agreement is one which has been reached with Joseph and Bertha Banks in Summitsville, Tennessee. A small manmade pond on their land contains 90 percent of the known barren's topminnow (*Fundalus* sp.). The Banks recognize the uniqueness of their situation and are anxious to protect these endangered fish. An agreement to protect the species and its habitat has been reached between the Banks, the TWRA, and the Nature Conservancy (TNC). The agreement maintains the Banks' rights as landowners, while simultaneously ensuring the protection of the topminnow.

Dr. David Etnier, the ichthyologist from the University of Tennessee who described the now well-known snail darter, has found very small numbers of the topminnow in two streams not far from the Banks' pond, in Meadow Branch and a tributary to Hickory Creek. In the fall of 1981, Etnier alerted TWRA that the water level in the Banks' pond was dangerously low. Accordingly, TWRA biologists removed most of the fish and placed them in aquariums. Recently, since the water level has again risen, the minnows were put back into the pond. Survival of the species depends on protection of water quality and quantity and the avoidance of channelization or gravel dredging.

The four sites in Tennessee where red-cockaded woodpeckers (*Picoides borealis*) are known to nest are all being preserved with land owner cooperation. Research is being done to determine optimum silvacultural methods for regeneration of preferred pine tree species which the birds use for nesting.

In order to avoid the sale and development of a site in Davidson County where a black-crowned night heron (*Nycticorax nycticorax*) rookery has existed since 1908, TWRA, the Audubon Society, the Nature Conservancy, the TOS, and the Service cooperated to purchase the land. The species which is protected by the State, has only five known remaining nesting colonies, four of which are in east Tennessee.

Cooperative agreements are also being made with owners of caves which provide habitat for the Indiana bat (*Myotis sodalis*) and gray bat (*Myotis grisescens*) in order to limit human entrance to the caves during seasons of occupation. The Indiana bat exists in 10 caves in Tennessee; there are 67 gray bat caves with over 90 percent of the bats depending on a few caves for winter hibernation.

Other Program Activities

An initial top priority of TWRA's NG–ES program was to compile all available information about the status, limitations, and needs of Tennessee's rare wildlife. TWRA and the Tennessee Heritage Program jointly sponsored the development of *Tennessee's Rare Wildlife*. The first volume of this species' status report, "The Vertebrates," was published in 1980. The second volume, "The Invertebrates" will be printed in the near future.

TWRA sponsored a project launched at the Tennessee Technological University which seeks methods to determine the age and annual reproductive success of bobcats (*Lynx rufus*). These methods have been sought for evaluation of bobcat population trends due to

KEY WILDLIFE HABITAT

THIS HABITAT SUPPORTS
UNIQUE WILDLIFE SPECIES

GRAY BAT

INDIANA BAT

PLEASE DO NOT DISTURB

STATE/FEDERAL
LAWS APPLY

THIS IS A TWRA – LANDOWNER
COOPERATIVE PROJECT

Copies of this sign are posted near active bat caves in order to help minimize human disturbance.

Photo by Tennessee Wildlife Resources Agency

Shaking hands to seal a cooperative agreement to conserve the endangered barren's topminnow are Bob Hatcher, TWRA Endangered Species Coordinator, and Mr. Joseph Banks, owner of the manmade pond in the background which supports about 90 percent of the fish. Others pictured are (from left to right) Ms. Day Lohmann, Tennessee Nature Conservancy; Jeff Prestwich, TWRA Area Endangered Species Coordinator; and Mrs. Bertha Banks.

the requirements of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). After completion of this project in 1982, it is hoped that such methods will be useful for determining baseline bobcat population trend data for future management of this species. Harvest of bobcat is monitored by the State through a bobcat tagging program and required reporting by fur dealers.

Since about 1950, the streams where the Ohio River muskellunge (*Esox masquinongy ohioensis*) lives have been severely polluted from surface and underground coal mines. TWRA is hatching and restocking the muskellunge in streams that have recovered sufficiently from pollution. Suitable water quality, however, is seriously threatened by increasing coal demands.

Tennessee has very diverse habitats which host a wide variety of wildlife species. Other endangered wildlife in Tennessee which are protected by either State or Federal laws include: the snail darter (*Percina tanasi*), lake sturgeon (*Acipenser fulvescens*), eastern cougar (*Felix concolor cougar*), river otter (*Lutra canadensis*), peregrine falcon (*Falco peregrinus*), painted snake coiled forest snail (*Anguispira picta*), and 16 endangered mussels. Tennessee lists 57 endangered and threatened wildlife species, of these, 28 are also federally listed.

Future Plans

Beginning fiscal year 1983, Federal funds which were formerly available for endangered wildlife conservation under Section 6 of the Endangered Species Act will no longer exist. Despite financial setbacks, however, it is believed that Tennessee's program has enough public support and volunteers to enable continuation of priority programs and for planning of future projects.

During 1982 and 1983, TWRA plans to continue its bald eagle and osprey hacking projects at previous rates, with increased use of qualified volunteers to offset budgetary cuts. Sometime between 1983 and 1985, hacking of peregrine falcons is proposed.

* * * * *

Plant conservation in Tennessee will be featured in a later issue of the BULLETIN. The Tennessee Heritage Program has official authority to conserve plants in the State.

* * * * *

This article was coauthored by Alison Chisholm, an English major at Marymount College of Virginia in Arlington, Virginia.

LEOPARD

Continued from page 3

standard comment period, which ended June 24, 1980, was reopened until December 24, 1980, because of strong public interest. In part because of the controversial nature of the proposed action, and to insure that the final decision would be based on the best available biological data, the Service contracted for another study, "The Leopard *Panthera pardus* and Cheetah *Acinonyx jubatus* in Kenya" (see October 1981 BULLETIN); the comment period was again reopened from September 8, 1981, to October 8, 1981.

Over 1,000 written comments to the proposal were received. Of these, more than 90 percent opposed both the proposed reclassification and the proposed regulations to allow the importation of trophies under CITES, although most of these communications were personal opinions and provided no substantive data. Those comments that did contain significant information or matters of special concern were addressed by the Service in the final rulemaking. Upon a re-examination of the original status reports, the 1981 leopard study, the public comments, and information from many of the affected African nations, the Service modified the action as originally proposed. The populations to be reclassified as Threatened were changed from those of all sub-Saharan Africa to only those of southern Africa. No country objecting to the proposal was affected by the final rulemaking.

Effects of the Rulemaking

Although leopard populations in southern Africa have been reclassified as Threatened, they will still receive protection under the Endangered Species Act of 1973, and all leopards will be retained on Appendix I of CITES. No commercial trade in leopard products is authorized, and importation of these products into the United States will continue to be strictly prohibited.

Legally taken sport-hunted trophies of Threatened leopards may be imported into the United States provided the importer has obtained a permit from the U.S. Management Authority under the terms and conditions of CITES. In addition, permits for Threatened species may be issued for scientific purposes to enhance the survival or propagation of the species, for educational purposes, or for other reasons consistent with the purposes of the Act.

Since the leopard is killed indiscriminately in parts of Africa because of predation on livestock, the Service believes that limited sport hunting would benefit the species as a whole by creating an economic incentive for its conservation. Hunting license and guide fees are expected to give the affected countries the means to manage the leopard as another natural resource.

REGIONAL BRIEFS

Continued from page 2

mussel *(Conradilla caelata)*. TVA plans to complete its analysis of the data and present the results to the committee by June or July of this year.

Region 5—The Virginia Round-leaf Birch Recovery Plan has been submitted to the Director for approval. This will be the first recovery plan completed for a listed tree, and one of the first for any plant.

Regional endangered species personnel are reviewing a proposal from the State of Massachusetts to use ospreys as "foster parents" for bald eagle chicks on Martha's Vineyard Island.

Region 6—Representatives from the Service, Bureau of Land Management, Utah Division of Wildlife Resources, and the University of California met in Salt Lake City recently to discuss development of the Beaver Dam Slope Desert Tortoise Recovery Plan.

Last December, about 7,300 humpback chub *(Gila cypha)* were taken from the Willow Beach National Fish Hatchery in Arizona via helicopter into Cataract Canyon, Utah, and released in the Colorado River to supplement existing populations. The fish averaged about 3 inches in length, and had been marked with coded wire nose tags. The area will be monitored in future years, and all captured humpback chubs will be screened with a field sampling detector to check for the presence of the magnetized tag.

The October 1981 BULLETIN reported on a Memorandum Opinion and Order issued by the United States District Court for Colorado regarding a lawsuit brought by the Colorado River Water Conservation District and other plaintiffs against the Department of Interior and the State of Colorado. The court ordered that summary judgement be entered for the plaintiff river districts, declaring that the designations and listings of the Colorado River squawfish *(Ptychocheilus lucius)* and humpback chub as Endangered species are invalid and void. Since then, the court has withdrawn the Memorandum Opinion and Order, and vacated the judgement. The court found that the fish were properly classified as Endangered.

Unfortunately, this does not end the case. Summary judgement has not been made on the plaintiffs' claim that the Federal defendants' impoundment projects are in violation of the Endangered Species Act; thus, they request the court "to order the Defendants to open the gates on every dam on the Colorado River System and substantially return the river to its natural condition." Summary judgement also has not been made on the plaintiffs' claims that (1) competition and predation by exotic, or non-native, fishes have caused the decline of the chub and squawfish, (2) non-native parasites and diseases have been introduced as a side effect of stocking these fishes, and (3) continued stocking and limitations on catching non-native fishes demonstrate a preference for these fishes which, if allowed to continue, will eradicate the chub and squawfish populations.

Region 7—A status report has been completed on the Endangered short-tailed albatross *(Diomedea albatrus)*. Once common in Alaskan waters, this species is now the rarest of all albatrosses. *D. albatrus* is making a slow recovery, now numbering 250 birds on Torishima and Minami Kojima, Japan. A limited number of copies of the 36-page status report are available upon request from the Alaska Regional Office.

During the 1982 field season, the Alaska office will continue the peregrine falcon survey and banding efforts on five rivers in the interior and North Slope regions of Alaska. Additionally, it will be surveying the northwest coastal region of the State in anticipation of oil and gas exploration in this area. As in 1981 Alaska office researchers will trap adult peregrines from interior populations to obtain blood samples for pesticide analysis. In 1982, blood from adults from the North Slope regions will also be sampled. Preliminary results from the analysis of samples collected in 1981 indicate higher pesticide residues in Alaska birds than of those recorded from peregrines on Padre Island, Texas (also collected in 1981). In cooperation with the Migratory Bird Program, migration studies on peregrine falcons and other raptors will begin in southeastern Alaska this year.

Field activities planned for the Aleutian Canada goose *(Branta canadensis leucopareia)* recovery effort in 1982 include a spring survey of release islands (Agattu, Amchitka, and Alaid/Nizki), an estimate of the Buldir Island nesting population, the release on Agattu Island of propagated birds from the Northern Prairie Wildlife Research Center, and the trapping and transplanting of birds from Buldir to Agattu Island.

According to Brian Johns of the Canadian Wildlife Service, no Eskimo curlews *(Numenius borealis)* were seen this past summer during a brief survey of the Anderson River region in the Northwest Territories.

Hawksbill Nesting in Florida

On October 22, 1981, a female sea turtle deposited a clutch of 170 eggs on Soldier Key, Florida (next to Key Biscayne National Monument). Between January 20–26, 1982, the young emerged and were found to be hawksbills (*Eretmochelys imbricata*). This is one of the first verified hawksbill nestings in the United States, and the first where voucher specimens have been acquired.

The nesting was unusual in several other respects. Until this time, the latest sea turtle nesting record in the U.S. during any season was that of a green turtle (*Chelonia mydas*) on September 6, 1981; the hawksbill nesting is the first sea turtle nesting known to occur in colder months in Florida.

After the October 22 nesting was reported, Dr. George Dalrymple of Florida International University (FIU) moved approximately half the eggs to an incubation chamber. A total of about 50 eggs hatched, including those remaining in the Soldier Key nest. Environmental stress from low temperatures and the long incubation time (over 90 days at both locations) are thought to have contributed to developmental abnormalities that have plagued the clutch. Most of the hatchlings died within a few days, and only a few remained alive as of February 5 at FIU and the Miami Seaquarium. Unfortunately, none are expected to survive.

PUPFISH

Continued from page 1

Game concurred with the available evidence, but proposed to continue surveying potential habitats until 1979, after which removal from the list was recommended if no other populations were discovered.

Additionally, the Service received comments on the proposal from seven concerned citizens, all of whom considered delisting inadvisable. Six respondents had observed pupfishes, five of them in the vicinity of Tecopa, which they logically assumed were Tecopa pupfish. However, biologists generally concur that all specimens examined in the area since 1970 represent an unlisted subspecies (*C. nevadensis amargosae*), which is widespread and locally common in parts of the Amargosa River system and in other springs in and near Tecopa. The Tecopa pupfish had considerably larger scales plus several proportional and other differences which distinguished it from the Amargosa River pupfish subspecies.

Continuing concern and conservation efforts for *C. nevadensis amargosae* are justified, because its range and habitat are also limited. This surviving sub-

Continued on page 8

BOBCAT

Continued from page 3

the CITES criteria for listing species and delisting them from the appendices. Copies of the full text of the Service's proposal which will be sent to the CITES Secretariat are available from the Office of the Scientific Authority, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

Postal Procedure

The Service will send the bobcat delisting proposal to the CITES Secretariat for consideration through the mail procedure. Upon receiving the proposal, the Secretariat will circulate it to all Parties. Parties have 60 days to submit to the Secretariat comments and data on the proposal. These data and comments are then combined and communicated to all the Parties by the Secretariat. If no objection is received by the Secretariat within 30 days of the date replies and recommendations were sent to the Parties, the amendment (the proposal in question) will enter into force in 90 days, except for those Parties which take reservations. If an objection by any Party is received by the Secretariat, the proposed amendment will be submitted to a postal vote after the Secretariat has notified all the Parties that an objection has been received.

Unless the Secretariat receives the votes for, against, or in abstention from at least one-half of the Parties within 60 days of the date of notification, the proposed amendment will be referred to the next biennial meeting of the Conference for further consideration. If votes are received from one-half of the Parties, the amendment must be adopted by a two-thirds majority of Parties casting votes. The Secretariat notifies all Parties of the result of the vote.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	U.S. & Foreign	Foreign Only	THREATENED U.S. Only	U.S. & Foreign	Foreign Only	SPECIES* TOTAL
Mammals	15	17	224	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	1	0	0	0	0	0	1
Insects	7	0	0	4	2	0	13
Plants	51	2	0	7	1	2	63
TOTAL	192	43	445	45	7	24	756

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the leopard, gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 11 animals
9 plants

Number of Critical Habitats Listed: 50
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 46
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

January 31, 1982

PUPFISH

Continued from page 7

species and its habitat needs have been considered locally in planning and development of the region, at least partially, because of the listing of its less fortunate relative. It is not presently in danger of extinction.

The Director of the California Department of Fish and Game summarized the status findings of his agency, stating that Tecopa pupfish were either extinct or at such low population densities that sampling methods were unproductive. He indicated that a lookout for possible survivors would continue whether or not the species was delisted.

New Publication

The Proceedings of the first annual meeting of the Gopher Tortoise Council entitled "The dilemma of the gopher tortoise—Is there a solution?" is now available. It can be ordered from Richard Franz, Florida State Museum, University of Florida, Gainesville, Florida, 32611 for $5.00.

Materials featured in the "New Publications" column are presented for information purposes only. The mention of non-Federal government publications does not imply concurrence with their contents or with the philosophies of the various publishers.

February 1982 Vol. VII No. 2

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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ENDANGERED SPECIES Technical Bulletin

Department of Interior. U.S. Fish and Wildlife Service
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House Subcommittee Hears Testimony on the Act

Oversight hearings on the Endangered Species Act of 1973 were held by the U.S. House of Representatives on February 22 and March 8, 1982. These sessions, along with an earlier round of hearings conducted on December 8 and 10, 1981, by the U.S. Senate, are preliminary to reauthorization of the Act by Congress.

Congressman John Breaux (D-LA), chairman of the Subcommittee on Fisheries and Wildlife Conservation and the Environment, Committee on Merchant Marine and Fisheries, presided over both days of House hearings. Breaux opened the hearings by stating, "I think most of us agree that the goals of the Act are noble. Most of us also agree that there have been problems for various reasons with its implementation. Let us resolve to listen to each other to work together in a spirit of compromise, to develop legislation that will result in a strong, effective, and rational program to protect endangered species." Testimony was received by the Subcommittee from three Federal agencies and from over 2 dozen other witnesses representing State governments, private industry, conservation groups, and academia.

The witnesses were organized into panels addressing various issues. Summary testimony of the Fish and Wildlife Service (Interior), National Marine Fisheries Service (Commerce), and the State Department was not heard until the end of the second day, allowing these witnesses to respond to all preceding testimony.

Eugene Hester, Deputy Director of the Service, testified that a recent agency review of the Act had revealed "several problem areas which need to be addressed." He stated that the Service, however, was "uncertain how to translate the identification of these problems into specific legislation" and suggested that, perhaps, policy or regulatory changes could solve many of the problems. The Service recommended that the Section 7 "exemption process" be streamlined and that an "experimental population" category be established under the Act. The Service requested a 1-year reauthorization during which it will attempt to "correct identified problems through existing regulatory and administrative mechanisms before opening up the Act to further major legislative modification." Other Service witnesses were Ronald E. Lambertson, Associate Director and Endangered Species Program Manager; John L. Spinks, Chief, Office of Endangered Species; and Richard Jachowski, Chief, Office of the Scientific Authority.

William H. Stevenson, Deputy Administrator for Fisheries, National Marine Fisheries Service, summarized Commerce's activities conducted under the Act. He testified that the Act "has worked well with respect to the marine species" and recommended a 2-year reauthorization without amendments. Richard B. Roe, Acting Director, Office of Marine Mammals and Endangered Species, also testified for Commerce.

The testimony of David A. Colson, Assistant Legal Advisor for Oceans, International Environmental and Scientific Affairs, U.S. Department of State, focused on international wildlife conservation, and in particular, on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) which is implemented by the Act. Colson stated, "The Department of State is firmly committed to the reauthorization of the Act as a means of carrying out our international obligations and furthering our interests. We should be concerned about amendments to the Act which would call into question our ability to carry out our obligations or which would detract from the leadership role we exercise."

Prior to the State Department's testimony, a proposal had been made that the Act be amended to require that the United States *automatically* take a reservation if, under CITES, a domestic species is added to the CITES appendices notwithstanding U.S. opposition. Colson commented on this amendment,

Continued on page 5

Condor Pair Accidentally Destroys Its Own Egg

Efforts to conserve the critically Endangered California condor *(Gymnogyps californianus)* were dealt a setback February 26 when the first egg known to have been laid this season was accidentally destroyed by the breeding pair.

On February 14, a biologist with the Condor Research Center was the first person ever to witness the laying of a California condor egg. The egg was dropped from the standing position, falling about one foot into a sand substrate without suffering any apparent damage, and the female began incubation within minutes. The biologist observed the event through a telescope from one-third of a mile away in the mountains northwest of Los Angeles.

Both birds took turns incubating the egg until February 24, when the male condor refused to relinquish it to the female. After 2 days of disputing, the female managed to work the egg out from under her mate. Unfortunately, the egg rolled out of the nest cave and, despite efforts by both condors to work it back inside, it rolled over the cliff. Most of its remains were quickly consumed by ravens and the female condor, although a few fragments were recovered for study.

The condor pair has mated again since the incident and, because the loss occurred so early in the breeding season, there is a reasonably good chance that the birds might produce a second egg. They are believed to be the same pair that successfully fledged a chick 2 years ago after other disputes at that time.

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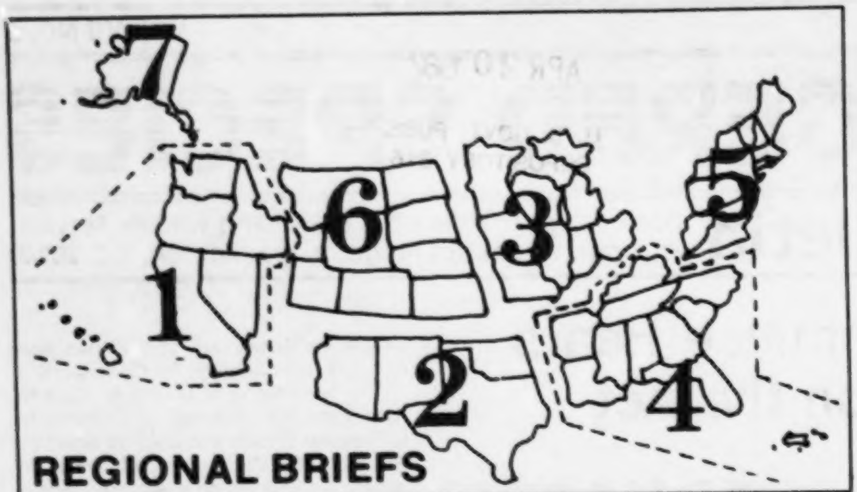
REGIONAL BRIEFS



Endangered Species Program regional staffers have reported the following activities for the month of February:

Region 1—Efforts to eradicate all feral sheep and goats from Mauna Kea Forest Reserve on the Island of Hawaii are progressing successfully. The project was mandated by a Federal Court order, and is intended to protect the Endangered palila *(Psittirostra bailleui)* and its mamane-naio forest ecosystem. Between July 1980 and May 1981, the first phase of the project involved public hunting, which harvested 1074 feral sheep and 95 feral goats. The second phase, involving Hawaii Department of Forestry and Wildlife staff, resulted in the taking of 494 feral sheep and 64 feral goats by October 1981. At that time, it was estimated that fewer than 30 sheep and 6 goats remained. Since then, a bimonthly program of 1-week long efforts using Hawaii personnel and helicopters has been continuing in the effort to eradicate the few remaining feral goats and sheep.

The Laysan Duck Recovery Plan has been submitted to the Director for approval.

Representatives of interested Federal and State agencies and the botanical community at large met recently in California for the annual review of the approximately 800 California plant taxa published in the December 15, 1980, Notice of Review.

Region 2—The Dexter National Fish Hatchery has produced about 1.8 million razorback sucker *(Xyranchea texanus)* eggs, with approximately 500,000 larvae hatched as of March 1, 1982.

Some progress is being made toward acquisition of the San Bernardino Ranch (Arizona) in fiscal year 1982 after meetings with The Nature Conservancy and the Cochise County Recreation Commission. The ranch contains habitat for several listed fishes.

As of February 26, 1982, there were eight active bald eagle *(Haliaeetus leucocephalus)* territories in the Salt and Verde River systems (Arizona), with young hatched at three sites. One nest, however, was about to be flooded by the rising Horseshoe Reservoir. The adults at that nest are incubating the eggs, and several contingency plans are being considered.

The Texas Parks and Wildlife Department is assisting Region 2 by trapping and shipping Texas bobwhites *(Colinus virginianus texanus)* to be used as "foster parents" for introductions of masked bobwhite *(C.v. ridgwayi)* chicks from the Patuxent Wildlife Research Center into Mexico. This project is part of the U.S./Mexican Cooperative Agreement for Wildlife Conservation.

Region 4—The Georgia Department of Natural Resources has located two more eagle nests in Georgia. Unlike the nest found last year, which was the first nest reported in Georgia in several years, these nests are not located on the coast.

The Eastern Indigo Snake Recovery Plan has been submitted to the Director for approval. Draft recovery plans for the Tennessee purple coneflower *(Echinacea tennesseensis)*, Alabama cavefish *(Speoplatyrhinus poulsoni)*, and the painted snake coiled forest snail *(Anguispira picta)* have been submitted for technical review. Agency reviews are being conducted on recovery plan drafts for the Puerto Rican

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming **Region 7:** Alaska.

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parrot *(Amazona vittata)*, red wolf *(Canis rufus)*, and Eastern cougar *(Felis concolor cougar)*.

The Range-wide Red-cockaded Woodpecker Survey is continuing with input from military installations and national wildlife refuges in the region.

The Green Pitcher Plant Recovery Team was appointed on January 6, 1982, and a draft recovery plan, completed under contract, was transmitted to the recovery team on February 12, 1982.

Since early February, there has been a continuing die-off of manatees *(Trichechus manatus)* in Lee County, Florida. As of March 4, the toll was 21 known dead. One was probably injured in a boat collision, but the others exhibited no signs of trauma and their cause of death has not yet been determined, although cold water temperatures have been ruled out. The manatee salvage and necropsy team, operating out of the National Fish and Wildlife Laboratory (NWFL) in Gainesville, Florida, has taken tissue samples, which are being analyzed at NWFL and various other labs.

Region 5—Pete McLain, Deputy Director of the New Jersey Fish, Game, and Wildlife Department, has prepared a plan for bald eagle management in New Jersey. The one remaining bald eagle pair in the State has a long history of nesting failure, but officials are hopeful that they will accept a captive-produced hatchling this spring from the Patuxent Wildlife Research Center.

A bald eagle found incapacitated along the lower Connecticut River January 31 was rehabilitated by raptor experts Jan and Stuart Mitchell and released 2 weeks later. The nature of the bird's problem was not known, but it had a body temperature lower than normal, and the Mitchells provided food and antibiotics. The event received coverage in the local Connecticut press.

The Delmarva Fox Squirrel Recovery Team met in Annapolis February 19 to discuss recovery progress, funding, and updating of the recovery plan. Additional squirrel transplants in Maryland and Virginia are scheduled for this spring.

Region 6—A management plan is being prepared for whooping cranes *(Grus americana)* on the Platte River in Nebraska. The plan will be based largely on the results of recent studies completed by the Service, U.S. Geological Survey, and Bureau of Reclamation. Phase I of the plan will concentrate on a review of the Platte River Studies and the flow aspects of the plan, including the amount of flow needed to scour the habitat, the amount needed when cranes are present, and the amount needed to protect the wet meadow complex. Phase II of the plan, to be completed when funds become available, will cover other alternatives and recommendations for protecting the habitat, such as mechanical and chemical methods for clearing woody vegetation.

A Memorandum of Understanding (MOU) was signed with Francis E. Warren Air Force Base in Cheyenne, Wyoming, for the management and protection of a rare plant species, the Colorado butterfly plant *(Gaura neomexicana* ssp. *coloradensis)*. One of three known populations exists on the base. This is the first of several MOU's that Region 6 is pursuing for plants.

Twenty Aleutian Canada geese *(Branta canadensis leucopareia)* were killed by a mink *(Mustela vison)* at the Northern Prairie Wildlife Research Center during a blizzard the night of February 23. Over 50 mallards *(Anas platyrhynchos)* were also found dead. The winter bird pens have been relatively secure in the past, and it is thought that the deep snow drifts may have allowed the animal to cross the perimeter fences into the pen complex. Although the mink at first eluded a number of live traps which were set in and around the pens, it was found captured the following morning.

A dead black-footed ferret *(Mustela nigripes)* was found near the ranch southwest of Meeteetse, Wyoming, where dogs killed a ferret last September (see the October 1981 BULLETIN). The ferret was found by Dr. Tim Clark, who has been working in the area to obtain information on the winter activities of black-footed ferrets and to locate additional prairie dog towns with ferrets present. A necropsy did not reveal the cause of death, but additional tests are being conducted. It has been determined that the ferret definitely was not the individual radio-collared and tracked in November 1981 (see the December 1981 BULLETIN).

A third dead ferret, this time a road kill, was found March 3 about ¼ mile north of Meeteetse, and approximately 15 miles northeast of the main study area. This latest discovery has raised biologists' hopes of finding a new population of ferrets.

Region 7—Work is continuing on revising both the approved Aleutian Canada Goose Recovery Plan and the agency review draft of the Alaska Peregrine Falcon Recovery Plan.

Culebrita Island Remains Part of Refuge System

On February 1, 1982, Secretary of the Department of the Interior, James G. Watt signed a notice advising the public of his decision on the proposed disposition and administration of lands declared excess by the U.S. Navy on the islands of Culebra and Culebrita, Puerto Rico. The Department has decided to deed 936 acres in Culebra Island to the Commonwealth of Puerto Rico and to transfer 776 acres to the Service. The decision also retains approximately 262 acres on Culebrita Island in the Service's National Wildlife Refuge System.

Six species protected under the Endangered Species Act of 1973 are affected by this disposition which implements the alternative combining social, economic, and wildlife benefits developed in the Final Environmental Impact Statement. Cooperative management agreements between the Commonwealth and the Service relating to conservation and development of the natural and cultural resources on the land involved have been developed and will be carried out. The formal land exchanges are planned for early 1982. (For more information on this story see the November 1981 BULLETIN).

Back Issues of Bulletin Available

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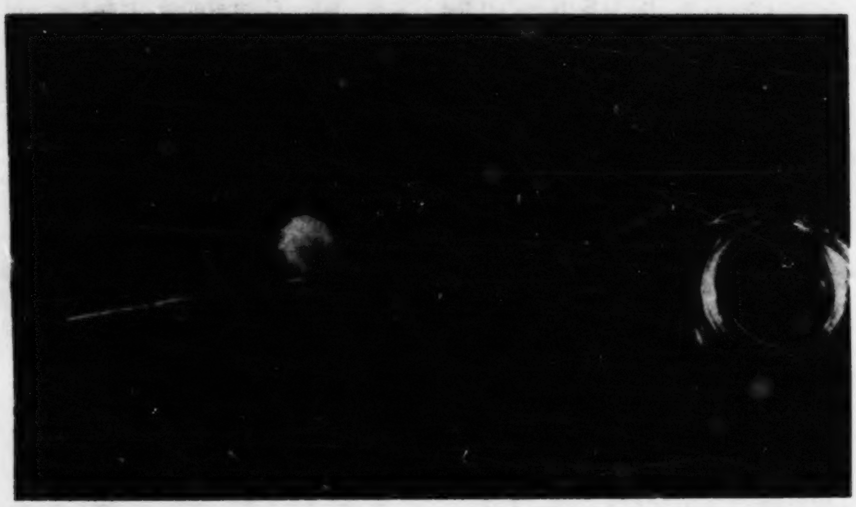
—The Editor

RULEMAKING ACTIONS— *February 1982*

Hay's Spring Amphipod Listed as Endangered



This tiny aquatic crustacean, the Hay's spring amphipod (Stygobromus hayi), *was recently added to the U.S. List of Endangered and Threatened Wildlife and Plants.*

Photo by C. Kenneth Dodd

Hay's spring amphipod *(Stygobromus hayi)*, an aquatic crustacean occurring in a single spring within the National Zoological Park in Washington, D.C., was listed by the Service as an Endangered species (F.R. 2/5/82). Critical Habitat has not been determined for the amphipod because of possible collection threat or malicious acts.

Extensive surveys of the Rock Creek Drainage by Dr. John Holsinger of Old Dominion University have determined that Hay's spring amphipod is found only at one small spring which emerges from the rocky western wall of the Rock Creek Valley and flows about 35 meters into Rock Creek. No more than 10 individuals of the species have been seen at the site at any one time.

The continued existence of this species is threatened by vandalism and by overcollecting for scientific purposes. Additionally, since the entire habitat covers an area of only about 5 square feet, it could be threatened by the possibility of its existence being overlooked during future park planning.

Implementation of the protections provided by the Endangered Species Act of 1973 for the amphipod will have no effect on development since those protections are consistent with the current management and maintenance of both Rock Creek Park and the National Zoological Park. No plans or projects are known or anticipated which will be affected by this rule. The listing, however, will draw attention to the species' existence and add further justification for its protection during future planning at the National Zoological Park.

The species was first proposed (under the scientific name *Stygonectes hayi*) as Endangered on January 12, 1977. As a result of the Endangered Species Act Amendments of 1978, that proposal was withdrawn by the Service. The species was reproposed on July 25, 1980.

Wood Stork Population Declines in States

Through a notice of status review (F.R. 2/16/82) the Service is seeking additional biological data on the U.S. population of the wood stork *(Mycteria americana)* to determine whether this species should be protected under the Endangered Species Act. The review was prompted by data indicating population decline and adverse habitat modification.

The Service is also seeking information regarding environmental and economic impacts which might be effected by a possible listing of the stork or by a determination of Critical Habitat for the species (i.e. effects on Federal funding, grants, or permits). Information responsive to the notice should be submitted on or before April 19, 1982, to the Area Manager, U.S. Fish and Wildlife Service, Department of the Interior, 15 North Laura Street, Jacksonville, Florida 32202.

Biology and Status

Wood storks, the only true stork native to the U.S., are large, long-legged wading birds which frequent freshwater and brackish wetlands and nest in cypress and mangrove swamps. They feed in freshwater marshes and similar habitats.

Formerly, wood storks nested in the coastal southern States from South Carolina to Texas. Today, nesting in the U.S. is confined to Florida and southeastern Georgia. The U.S. breeding population has declined from approximately 75,000 in the early 1930's to only 10,000 in 1979. The most consistent nest failures have occurred since 1960, with the overall number of storks breeding in the U.S. declining 41 percent between 1960 and 1975.

Two major factors involved in the decline of the wood stork in the U.S. are (1) the reduction in the number of available nesting sites and (2) the loss of an adequate food base during the nesting season. Both factors are due primarily to drainage and altered hydroperiods caused by manipulation of wetlands, particularly in south Florida. Major wood stork rookery and feeding areas are located on a map published within the notice of status review.

The present U.S. breeding population is now disjunct from the population which nests from Mexico through Central and South America to northern Argentina. The Mexican and Central American breeders, which disperse into the southern U.S. after breeding, are not subjects of this review.

CITES NEWS—*February 1982*

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director-Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S. Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

Service Announces Preliminary Proposals to Amend CITES Appendices

The Service has announced the preliminary results of its review of North American animals included on Appendices I and II of CITES (F.R. 2/17/82). Public comment on the review is invited, and all statements received by August 31, 1982, will be considered in determining whether the Service should submit proposals to the CITES Secretariat for circulation to the Parties.

Background

At last year's CITES conference at New Delhi, India, the Parties resolved to conduct a 10-year review of the appendices, and a notice initiating Service participation in this process was published in June 30, 1981 (see the July 1981 BULLETIN). The review is being conducted in coordination with the Canadian Wildlife Service and the Direccion General de la Fauna Silvestre of Mexico. Both biological and trade information on CITES species native to North America (and islands under U.S. jurisdiction) was solicited. Comments were received from a number of State wildlife agencies, zoos, and interest groups.

Potential Proposals

Among the potential proposals is a change in status under CITES for the following species, or some of their populations: bighorn sheep *(Ovis canadensis)*, gray wolf *(Canis lupus)*, lynx *(Lynx canadensis)*, pronghorn antelope *(Antilocapra americana)*, swift fox *(Vulpes velox)*, Tule white-fronted goose *(Anser albifrons gambelli)*, and the Mona Island boa *(Epicrates monensis monensis)*. The Service is considering a proposal to retain the river otter *(Lutra canadensis)* on Appendix II to help control trade in other otter species similar in appearance. Also under consideration are proposals to remove the blue pike *(Stizostedion vitreum glaucum)* and longjaw cisco *(Coregonus alpenae)* from Appendix I because these fishes are likely to have been extirpated.

The Service has decided not to propose changes in CITES listings of other North American animals at this time. Results of the review on plants will be announced in a separate notice. The Service plans to publish a further *Federal Register* notice in September 1982 announcing its decisions on the potential proposals prior to submitting them to the CITES Secretariat for consideration at the next CITES conference, which is expected to occur around April 1983.

HOUSE HEARINGS

Continued from page 1

saying it is "inappropriate and does not further our interests from a practical perspective." He said that the State Department was not opposed to reservations *per se*, but noted constitutional issues, the need for flexibility in conduct of foreign relations, and that "the legal structure of CITES is such that the taking of a reservation . . . is little more than a political objection, at least as concerns parties to the Convention." Colson also expressed concern that, such a precedent having been set by the U.S., broad scale taking of reservations could soon become the "death knell" of CITES' effectiveness.

A proposed amendment to the Act providing for a determination of "no detriment" under CITES had also been recommended to the Subcommittee. Colson commented on this saying, "While we would fully support greater State involvement in such determinations, we believe that to conform with CITES, any formulation concerning "no detriment" should be sufficiently flexible, providing for the consideration of possibly different criteria in specific cases, and subject to final determination by the *national* scientific authority established by Section 8(a) of the Act pursuant to the Act."

The third proposal of concern to the State Department is that the Act be amended to delete the requirement for listing foreign species, Endangered or Threatened, under the Act, leaving their listing solely to CITES. Colson clarified that the Act provides much broader protection than CITES and that "if listing of foreign species is terminated under the Act, Section 8 programs providing for fi-

Continued on page 11

Request for Data on Additions to CITES Appendices

The Service has published a notice (F.R. 2/16/82) requesting information from the public on species that might be considered for inclusion on Appendix I or II of CITES. All data received by May 31, 1982, will be considered in identifying organisms that should be proposed for CITES listing at the next conference of the parties, which will occur around April 1983.

The scope of this examination is worldwide, and includes both plants and animals. In its notice, the Service included a preliminary list of some plants that are considered candidates for listing under the Endangered Species Act, and which are of special interest for CITES protection because of actual or potential international trade.

After analysis of the information received in response to the February 16 notice, the Service plans to publish another notice in July 1982 announcing those species selected as candidates for U.S. CITES proposals. After further comment and review, the Service will publish in October 1982 a notice of the U.S. proposals that will be forwarded to the CITES Secretariat.

Copies of the February 16 notice, the current CITES appendices, and the criteria for making changes in the appendices are available from the Office of the Scientific Authority, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (202/653-5948).

Virginia's Endangered Mussels Studied by State's Co-op Fishery Research Unit

Second in a series on Endangered species projects being conducted by the Service's Cooperative Research Units program.

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Scientists have known since the last century that the rivers of eastern North America contain the richest and most diverse freshwater mussel fauna in the world. Unfortunately, this important resource has declined to the point where 23 species of mussels are now classified as Endangered.

Since relatively little is known about the biology, ecology, and habitat requirements of these organisms, research is essential for their conservation and recovery. The Service's Virginia Cooperative Fishery Research Unit, along with the Biology Department of the Virginia Polytechnic Institute and State University (VPI & SU), was contracted by the Virginia Commission of Game and Inland Fisheries (VCGIF) and the Service's Endangered Species Program for studies on the State's nine Endangered mussel species. Although the work is concentrating on listed species in southwestern Virginia waters, it is expected to have applications to other mussels of the Tennessee River Basin.

The Cumberland Plateau region, which includes portions of seven States along the southern Appalachian Mountains, is a major center of molluscan speciation. In addition to many endemic mussels, its waters contain fauna typical of the Ohio and Mississippi River Basins. Approximately 65 mussel species occur in Virginia, an indication of the area's diversity. Within the upper Tennessee River drainage, particularly sections of the Clinch and Powell Rivers, the North, Middle, and South Forks of the Holston River, and their numerous tributaries, are found the State's remaining populations of nine Endangered mussels: the fine-rayed pigtoe (*Fusconaia cuneolus*), shiny pigtoe (*F. edgariana*), rough pigtoe (*Pleurobema plenum*), Cumberland monkeyface (*Quadrula intermedia*), Appalachian monkeyface (*Q. sparsa*), birdwing (*Conradilla caelata*), dromedary (*Dromus dromas*), green-blossom (*Dysnomia* [*Epioblasma*] *torulosa gubernaculum*), and tan riffle shell (*D.* [=*E*] *walkeri*). (Two of these, *P. plenum* and *D. t. gubernaculum*, were reported historically from Virginia, but are now thought to be extirpated from the State.)

Virginia Co-op Fishery Research Unit Study

The lead responsibility for protection and management of the State's Endangered mollusks is with the VCGIF, which contracted with the Virginia Cooperative Fishery Research Unit and VPI & SU to obtain the necessary basic biological and ecological data. Among the chief study objectives were to 1) compile a literature digest, determine the species' ranges, and develop relative distribution maps; 2) describe the general habitat characteristics for each listed mussel; and 3) summarize the data. Co-op unit leader Dr. Garland B. Pardue, assistant leader Dr. Richard J. Neves, and biologists Dr. Ernest F. Benfield and Sally D. Dennis submitted the final report, aided in their investigations by Alexander V. Zale, Lynn Russell Weaver, and Jane Barden.

The projects included under the first objective were originally contracted to the Tennessee Valley Authority (TVA), and that agency's 1978 report provided a literature review, along with historical and recent collection records; however, since no fieldwork had been conducted to update the previous records, it was necessary to verify the Endangered mussel sites. A team of four biologists was sent out during periods of low stream flow (summer-autumn) to sample both historical sites and other areas showing evidence of suitable habitat. Where practical, the search was carried out by snorkling and wading; waterscopes were used in all riffle areas. Stream banks were examined for freshly dead shells, and representative shells of the various species found during the surveys were retained for the VPI & SU collection. All live specimens, however, were returned to the water. Wherever several individuals of a listed species were discovered, the biologists conducted quantitative sampling. All specimens in each sample quadrat were identified, counted, measured for shell length, and placed back into the same area.

Host Fish Surveys

Following internal fertilization of eggs, mussel embryos develop to the glochidial phase within the gills of adult female mussels. These immature mussels are released into the stream where, in most species, they must attach to the gills or fins of certain fishes. During this parasitic phase, the glochidia derive nutrients from the host fish and metamorphose further, developing the anatomy necessary to survive later as adults. Because of their particular requirements, most mussels exhibit degrees of specificity in their host selection; only certain fishes can benefit each mussel species. Conservation of the appropriate host fishes therefore is very important in any recovery effort for listed mussels.

As part of the Virginia Co-op Fishery Unit study, researchers visited all important Endangered mussel sites where there were no past fish collection records in order to determine species composition. A gas-powered, backpack electroshocking device was used to stun the fish and, after an initial exami-

Photo by Virginia Cooperative Fishery Research Unit

Searching for endangered mussels with a plexiglass-bottom waterscope and mussel scoop.

nation at the site to determine that no protected fishes were taken, the specimens were preserved in formalin for identification and further analysis in the laboratory.

Although more research is necessary on the requirements of Virginia's Endangered mussels, life history studies conducted by Zale and Weaver on several Cumberlandian mollusks have confirmed that nongame fishes are important hosts. This point has implications for certain traditional fishery management practices, such as the stocking of streams with game species, which could change fish community compositions. Among the Virginia co-op unit's recommendations is that fisheries management operations in Endangered mussel habitat be carefully reviewed.

Other habitat characteristics take on greater importance after the glochidia drop off the host fish to begin the free-living phase of their life cycle. Literature and site surveys were conducted on the substrate, water quality, and hydrology of the waters within southwestern Virginia.

TVA has recently completed similar studies in the upper Tennessee River drainage to evaluate the status of Cumberlandian mussels throughout their range.

Fusconaia edgariana

Typical habitat for the shiny pigtoe mussel in the North Fork Holston River. [Inset of the shiny pigtoe (Fusconaia edgariana).]

Photos by Virginia Cooperative Fishery Research Unit

Management Recommendations

Of the seven Endangered mussels still remaining in Virginia, five have declined to such a low level that habitat conservation appears to be their only chance for long-term survival within the State. Habitat for *Quadrula intermedia, Q. sparsa,* and *Dromus dromas* is in the Powell River between river miles (PRM) 115.8 and 130.6; *Conradilla caelata* occurs within the same stretch, as well as in the Clinch River between (at minimum) CRM 206.9 and 219.2; and *Dysnomia walkeri* is found only in the Middle Fork of the Holston River between MFHRM 18.4 and 29.1. Taken together, these 37 miles constitute virtually all known habitat for the five mussel species in Virginia. Until more is known about the particular needs of individual species, conservation of habitat for all species present at any given Endangered mussel site (both listed and nonlisted species) is considered the best approach. Among the study team's recommendations is that Virginia consider designating areas of special concern as mussel sanctuaries, similar to those already established in Tennessee to protect that State's Endangered mussels.

Because of their greater numbers and distribution, *Fusconaia cuneolus* and *F. edgariana,* the two other listed species still found in Virginia, are considered in less immediate danger. The Virginia Co-op Unit's studies of host fish identification and distribution, substrate, and water quality within the upper Tennessee River drainage indicates that suitable habitat for these two species exists outside their current range (although within their historical range). After further research on the mussels' life histories, and with permission from VCGIF, the researchers hope the two species can be reintroduced in some areas, with the goal of improving their status to the point where they will no longer be Threatened or Endangered.

Habitat Conservation

Before recovery and management of Virginia's Endangered mussels can be successful, the continuing problem of habitat degradation needs to be addressed. One of the study team's recommendations was simply the enforcement of existing water quality regulations. The Virginia State Water Control Board was urged to establish additional monitoring stations near Endangered mussel populations so that changes in immediate water quality can be detected. Some streams, such as the North Fork of the Holston River below Saltville, have been contaminated by chloride compounds and mercury. Even isolated spills of toxic substances could have devastating impacts on the sedentary, filter-feeding organisms.

Habitat damage also takes place in more obvious ways. Freshwater mussels generally occur in shallow streams where their specific temperature and oxygen requirements are met, but dam construction has turned some of these waters into deep, cold, stagnant reservoirs. Channelization, along with gravel and sand dredging, can result in the complete destruction of mussel beds. Siltation caused by improper agricultural, mining, and forestry methods has traditionally been a major problem, and today waste material from coal washing operations is also being recognized as having a significant impact on mussel populations. Fine particles enter the watershed and degrade the water quality, often settling in mussel beds, clogging the mollusks' gills, and making the substrate too unstable for their support.

Recovery Plan

A TVA malacologist under contract to the Fish and Wildlife Service through the Asheville Area Office is writing a comprehensive recovery plan, on a watershed basis, for all listed mussel species occurring in the Clinch, Powell, and Nolichucky Rivers. The data gathered through the Virginia Co-op Fishery Research Unit Study will be an important contribution to development of the plan.

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Although the importance of mussels in freshwater ecosystems is not fully realized by many people, mussels do play a significant role. Like all living things, they are part of a complex, delicately balanced network, and occurrence of a single species can affect many others. For example, both adult and immature mussels are an important food source for a number of mammals, waterfowl, and fishes. They are edible by humans as well, though not often consumed; mussel beds near municipal sewage or industrial outfalls are usually contaminated and consumption could therefore pose a serious threat to health.

Mussels are becoming very valuable as natural monitors of water quality. Because they feed by filtering particles out of the water column, mussels can accumulate pesticides, heavy metals, and other toxic substances in their tissues. The mollusks eventually collect pollutants present in streams even at very low concentrations, giving warning to humans of dangerous contaminants that are often difficult to detect.

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Other selected co-op projects will be featured periodically in future issues of the BULLETIN.

RECOVERY NEWS

Director Signs Five Plans

Final recovery plans for four species have been approved by the Service's Director: Grizzly Bear Recovery Plan—1/29/82; Maryland Darter Recovery Plan—2/2/82; Southern Sea Otter Recovery Plan—2/3/82; and Socorro Isopod Recovery Plan—2/16/82. A comprehensive work plan for the Florida manatee was signed on February 2, 1982.

Grizzly Bear

Historically, the range of the grizzly bear (*Ursus arctos horribilis*) extended from Ontario, Canada, westward to the California coast and from Alaska south to Texas and Mexico. Between 1800 and 1975, grizzly populations in the lower 48 contiguous States declined from estimates of over 100,000 to less than 1,000 bears. The leading causes for the species' decline were livestock depredation control, habitat deterioration, protection of human life, commercial trapping and sport hunting. Logging, mining, ranching, farming, and recreational development continued to add to man-caused mortality and adverse alteration of the grizzly's habitat.

Grizzlies are believed to have disappeared from Texas by 1890, California by 1922, Utah by 1923, Oregon by 1931, New Mexico by 1933 and Arizona by 1935. Remnant populations remain in mountainous park, forest, and wilderness areas of Idaho, Montana, Washington, and Wyoming. A grizzly bear was killed in early 1979 near the Continental Divide in San Juan National Forest, Colorado. This report casts doubt on whether the grizzly is still extant in Colorado.

The recovery plan identifies six ecosystems where grizzlies have been present during the past decade. These areas presently have adequate space and suitable habitat for the species' continued survival and are the primary focus of the recovery plan. The six areas lie in and around the Yellowstone National Park, the Glacier National Park and Bob Marshall Wilderness Area, Cabinet-Mountains, Selkirk Mountains, the Selway-Bitterroot Wilderness Area, and the North Cascades National Park.

Three of the six areas, where grizzly research is already underway and from which extensive data bases are available, were identified as high priority for implementing recovery tasks. These areas are designated the Yellowstone Grizzly Bear Ecosystem, (YGBE), the Northern Continental Divide Grizzly Bear Ecosystem (NCDGBE—Glacier National Park/Bob Marshall Wilderness Area) and the Cabinet-Yaak Grizzly Bear Ecosystem (CYGBE). Implementation of recovery actions in the remaining ecosystems will be undertaken as additional funds become available.

Highest priority tasks identified in the plan include: (1) decreasing losses to the populations from illegal take and other man-caused mortality. (It is especially important to reduce losses of female bears.); (2) monitoring the population status and trends; (3) developing and/or applying guidelines for multiple use activities on Federal lands to avoid conflicts with grizzlies; and (4) completing and resolving management stratification of Federal lands to reflect the different intensities and importance of grizzly bear use and provide optimum management direction.

Implementation of the recovery plan will be initiated by the Service's Denver Regional Director and carried out through the Denver Regional and Billings Area Office Endangered Species Staffs. Further information can be obtained by contacting the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 25486, Denver Federal Center, Denver, Colorado 80225 (303/234-2209).

Remnant grizzly bear populations remain in mountainous park, forest, and wilderness areas of Idaho, Montana, Washington, and Wyoming.

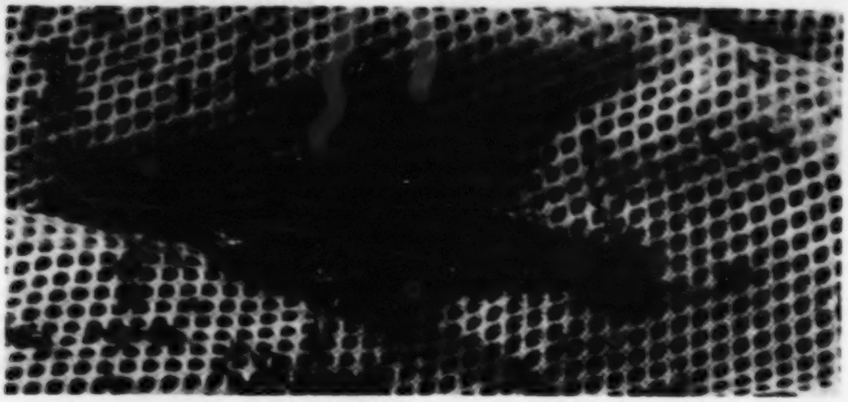
National Park Service Photo

Maryland Darter

The Maryland darter *(Etheostoma sellare)*, a 3-inch long fish, was discovered in 1912 and described the following year. In spite of attempts to collect the fish at the type locality ("Swan Creek near Havre de Grace, Maryland"—presumed to be Swan Creek near Aberdeen, Maryland), 50 years elapsed before it was reported again. In 1962 and again in 1965, single darters were collected from Gashey's Run (also near Aberdeen). In May 1965, a population of the elusive fish was located in Deer Creek in Harford County, Maryland; recent sightings of the darter, in 1974, 1977, 1978, and 1979 were all from Deer Creek. Researchers have generally concluded that the two individuals taken from Gashey's Run were probably stragglers from the Deer Creek population, which is probably the only permanent population of the species.

On March 11, 1967, the Maryland darter was listed as Endangered and placed under Federal protection. After studying the limited available literature and field records on the species, the Maryland Darter Recovery Team developed a recovery plan for the fish. Unless the actions specified in this plan are implemented in the near future, it is certain that the one known remaining population of this species will be further jeopardized.

The recovery plan outlines further study of the species' requirements and range. It also identifies steps to be taken for the protection, maintenance, and enhancement of the known darter



The Maryland darter is known to exist in only a single stream—Deer Creek, Harford County, Maryland.

Photo by James D. Williams

population and habitat. More specifically, it calls for the establishment of a refuge, development of water level requirements, improvement of water quality, active participation in the development of Deer Creek watershed activities, and development of public and scientific awareness of the species' needs. In the event that additional populations of the darter are found, the recovery plan suggests propagation of the fish in a controlled environment using living streams and/or hatchery rearing systems.

The presence of blue-green algae just downstream from the darters' habitat suggests that water quality standards may need to be improved. Studies are being conducted by the Maryland Water Resources Administration to document these needs.

The Maryland Darter Recovery Plan was developed by employees of the Maryland Department of Natural Resources, Smithsonian Institution Oceanographic Sorting Center, and the Service. Implementation of the recovery tasks will be initiated by the Service's Newton Corner Regional Director and carried out through the Newton Corner Endangered Species Staff. Further information can be obtained by contacting the Regional Director, U.S. Fish and Wildlife Service, Suite 700, One Gateway Center, Newton Corner, Massachusetts 02158 (617/ 965-5100).

Southern Sea Otter

The remnant southern sea otter *(Enhydra lutris nereis)* population in California currently inhabits approximately 300 kilometers of nearshore coastal waters from Oceano in San Luis Obsipo County to Santa Cruz in Santa Cruz County. Although this population has been slowly expanding in range, the number of otters does not appear to have increased at expected rates in recent years.

The California population has been under protective State legislation since 1913. In 1972, protective responsibility for the species was assigned to the Federal government under the Marine Mammal Protection Act (MMPA). Further protection was given the sea otter in 1977 when it was listed as Threatened under the Endangered Species Act of 1973 (ESA). Under both the MMPA and the ESA, Federal and State agencies are responsible for protecting the sea otter and its habitat.

The Service has the lead responsibility for developing and implementing the Southern Sea Otter Recovery Plan. The recently completed recovery plan was prepared by the Service in cooperation with the Southern Sea Otter Recovery Team.

The main objective of the recovery plan is to restore the southern sea otter to a non-threatened status and to maintain its population at its optimum sustainable level. Delisting of the species can be considered when the population is stable or increasing at sustainable rates in a large enough area of their original habitat that only a small portion of the population would be decimated by any single natural or man-caused catastrophe. To reach this point (1) at least one additional sea otter population must be established outside the current population range; (2) the existing population and its habitat must be protected; and (3) the threat from oil spills or other environmental changes must be minimized. The recovery plan outlines strategies to achieve these goals.

Because of its limited range, the southern sea otter is believed to be susceptible to population declines from oil spills. Rates of range expansion and population growth appear to have declined in recent years, while offshore development, production, and transfer of petroleum products continues to increase.

Secondary concerns include:

- vandalism, poaching, and other forms of illegal take;
- contamination of the sea otter and/or its habitat from sources other than oil;
- destruction and degradation of sea otter habitat as a result of coastal zone development or other human activities;
- the likelihood of increased conflict with commercial and recreational fisheries; and
- lack of precise data concerning numerical and functional relationships between sea otters, shellfish, finfish, kelp, and other components of nearshore marine communities.

Sea otter translocation should provide the necessary foundation for ultimately achieving the recovery plan objective. Implementation of the recovery tasks will be initiated by the Service's Portland Regional Director and carried out through the Portland Regional and Sacramento Area Office Endangered

Translocation should provide the necessary foundation for ultimately achieving the Southern Sea Otter Recovery Plan objective.

Photo by Karl W. Kenyon

Species Staffs. Further information can be obtained by contacting the Regional Director, U.S. Fish and Wildlife Service, Suite 1692, Lloyd 500 Building, 500 N.E. Multnomah Street, Portland, Oregon 97323 (503/231-6118).

Socorro Isopod

Isopods are members of the Phylum Arthropoda and the Class Crustacea. Most non-marine species of isopod are terrestrial, but of the North American aquatic genera, one is notable. This genus is *Thermosphaeroma*, which contains at least four highly restricted species, all occurring in warm springs. Among these is the Socorro isopod *(Thermosphaeroma thermophilum)*, an endemic to three neighboring springs in Socorro County, New Mexico.

This small aquatic animal is now confined to a single water system of an abandoned bathhouse ("The Evergreen"), which is supplied with water from Sedillo Spring. The water system, which now consists of a small (1m x 2m x 0.3m) cement-lined animal watering tank, a smaller pool, and approximately 40 meters of irrigation pipe, is located in the Socorro Mountains just west of the City of Socorro.

The Socorro isopod received little attention from conservationists until 1976, when the New Mexico Department of Game and Fish began to investigate its status. Studies by M.D. Hatch, S.M. Shaster, and others associated with the Department gathered significant information on the biology of the species. Captive populations were established in Albuquerque at the University of New Mexico, at the Rio Grande Zoo, and at Dexter National Fish Hatchery to preserve the genome against possible catastrophic extinction and to maintain diversity among captive populations. The major goal at present is to insure the survival of this species, possibly a relic of the marine biota that inhabited New Mexico millions of years ago.

The Socorro isopod has a flattened body with seven pairs of legs, antennae on the ear, and oar-like extensions (uropods) on the last segment. The grayish-brown color of the body is marked with small black spots and lines which run together forming a broad, black band in the center of each of the thoracic segments. All the exposed edges of the body are tinged with bright orange. The average length is 7.8mm in males and 5.1mm in females.

Although population sizes probably vary seasonally and perhaps annually, the only two published accounts of Socorro isopods made at the Sedillo Spring outflow have been similar. A 1976 report estimated the population to be about 2,400; a 1977 count estimated 2,449.

Because of its small numbers, limited distribution and limited habitat, the Socorro isopod was listed as endangered by the State of New Mexico on February 10, 1978, and as Endangered by the Service on March 27, 1978. The Socorro Isopod Recovery Plan was prepared by the New Mexico Game and Fish Department under contract to the Service.

The major threat facing the Socorro isopod is loss of habitat. Municipal and private water developments have completely altered the natural habitat of this species by capping the original spring source and by piping the water to other areas. The amount of water diverted to "The Evergreen" water system is limited, and a readily accessible cut-off valve can stop even this flow. Present conditions place the species in a very precarious situation, because continuous flows have not been secured. In addition, protection of habitat from harmful contaminants and other negative impacts cannot be guaranteed, because the habitat is on private land. Even though no adverse biological factors are known to be operating, events such as introduction of predatory and competitive species could change the present situation.

The prime objective of the Socorro Isopod Recovery Plan is to prevent the species' extinction by stabilizing and enhancing its existing habitat, and to initiate recovery by establishing and maintaining at least two additional populations. The plan calls for continued data gathering on the Sedillo Spring and captive populations to provide additional management information.

Necessary to the species' survival is a secure, permanent flow of water, a need which could be met through an agreement with the City of Socorro and the present landowners. The plan recommends this and additional agreements with the landowner to prevent contamination of the water, loss of vegetative cover and soil cover, and introduction of predatory or competitive species; to protect the area with fencing; and to monitor the status of the existing population. The plan also recommends the expansion of the Sedillo Springs habitat by constructing pools and runs, as well as the establishment and protection of other populations in natural areas.

Implementation of the recovery tasks will be initiated by the Service's Albuquerque Regional Director and carried out through the Albuquerque Endangered Species Staff. Further information can be obtained by contacting the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103 (505/766-2321).

Florida Manatee

A Comprehensive Work Plan for the West Indian Manatee *(Trichechus manatus)* has been prepared to assist with the planning and budgeting of future manatee recovery actions. The plan is a revision of the Outline and Implementation Schedule (Parts II and III) of the Florida Manatee Recovery Plan which was completed in 1980 and will be appended to the recovery plan. It identifies 33 public and private organizations which are now working on manatee conservation efforts in Florida.

Implementation of the work plan will be initiated by the Service's Atlanta Regional Director and carried out through the Altanta Regional and Jacksonville Area Office Endangered Species Staffs. Further information can be obtained by contacting the Regional Director, U.S. Fish and Wildlife Service, Richard B. Russell Building, 75 Spring Street, S.W., Atlanta, Georgia 30303 (404/221-3583).

A Comprehensive Work Plan for the West Indian Manatee identifies 33 public and private organizations which are now working on conservation efforts for the species.

Photo by Pat Rose

HOUSE HEARINGS

Continued from page 5

nancial assistance to and cooperation with other countries could be severely hampered or even terminated." The State Department urged that the Act be reauthorized in such a manner so as not to conflict with U.S. treaty obligations or foreign policy interests.

Considerable testimony was given by wildlife department representatives of various States regarding bobcat export regulations under CITES. Several States, the International Association of Fish and Game Agencies, the American Fur Resources Institute, and the Wildlife Legislative Fund all recommended that Section 8 of the Act be amended to allow the States to make "no detriment" findings regarding the export of resident species (i.e. bobcat and river otter). The proposal would permit export of Appendix II species so long as the species is subject to management by the State. This position is based on the belief that data and expertise necessary to make such management decisions are better found at the State level.

The Massachusetts Audubon Society and the Humane Society, however, recommended that the "no detriment" authority remain with the Federal Government. This position is based on the assumption that funding provided Federal programs will be more consistent from year to year and that a Federal oversight program would avoid law enforcement problems involved with interstate traffic. These groups urged that no amendment be proposed to solve the bobcat dilemma.

The Wildlife Management Institute agreed that the "no detriment finding" should remain a Federal determination, but objected to the "population estimate" required by the recent court decision banning U.S. bobcat exports. A lengthy discussion of the merits of population trend information versus population estimates ensued. State representatives generally felt the latter to be unnecessary and expensive.

State representatives also called for restored Section 6 funding, for the establishment of experimental populations, and, in general, for more communication on the part of Federal agencies. Some groups called for the taking of an "automatic reservation" by the U.S. delegation to CITES on species listed for protection under CITES but not under the Act. Others characterized the latter as unwarranted.

The World Wildlife Fund called the Act "the most important wildlife conservation law in the United States and probably in the world" and warned that "nothing could damage more our contribution to the worldwide protection of endangered animals and plants than to weaken the protection now available for our own endangered living resources." World Wildlife urged that interagency regulations implementing Section 7 be kept strong, and that all divisions of taxa (including so called "lower life forms") remain subject to the Act's protection. It called for publication and public review of the Service's priority system implementing Section 4, as required by the 1978 Endangered Species Act Amendments. World Wildlife also reminded the Subcommittee of our nation's responsibility under the Act for furthering the purposes of the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere.

Private industry complained of "myriad lists of protected species" which often cause confusion for travelers and the wildlife products trade, and of what was described as unnecessary paperwork, such as the Service's regulation requiring import/export licenses. (See September 1980 and January 1981 BULLETINS for more information on import/export licenses.)

"the most important wildlife conservation law in the United States and probably in the world"

The 1978 and 1979 Amendments to the Endangered Species Act added economic assessment requirements to the listing process under Section 4 of the Act. This addition was intended to help identify at an early stage potential conflicts between protected species and needed development projects.

Michael Bean of the Environmental Defense Fund, representing 17 other conservation groups, asserted that the political implications of listing certain species which have potential economic impact has curtailed listing activity by the Service. He also testified that the economic analysis requirement itself, in addition to the economic review requirements of Executive Order 12291, the Regulatory Flexibility Act, and the Paperwork Reduction Act, have caused extraordinary delays in listing. He submitted to the Subcommittee an amendment which provides a strictly biological forum from which species listings would be made, and he proposed that economic analyses be delayed and made part of the Critical Habitat determination process—a second step to be completely separate from the listing process. (Under current provisions, listing and Critical Habitat requirements are generally a single process.) The Nature Conservancy also emphasized the need for a listing process based solely on biological criteria, and made a plea for increased funding for information gathering purposes.

Representatives from the American Mining Congress, National Agricultural Chemical Association, National Forest Products Association, National Oceanic Industries, the Nuclear and Environmental Division of Northeast Utilities, and Western Regional Council all testified regarding what was referred to as the economic hardship some of their constituency had borne because of the Act. Most of these groups voiced objection to the delays surrounding the biological assessment feature of the Section 7 consultation process and they described the existing exemption process as too complicated and time consuming. The National Wildlife Federation submitted an amendment to streamline the exemption process, cutting its schedule to about half the currently required time.

Several industry representatives suggested that the Act be amended to provide compensation to parties incurring adverse economic impacts from the Act. Others requested that specific language be placed in the Act to clarify its "taking" provision under Section 9. The desired effect of such a change in the language would be to protect individuals who had received a "no jeopardy" opinion under Section 7 of the Act from the possibility of later being prosecuted for "taking" under Section 9 if their approved action inadvertently resulted in the destruction of one or several members of the species involved. A related topic of discussion involved the definition of "harm" which has been recently redefined by the Service (F.R. 11/4/81) on the grounds that the original language of the Act could be construed as prohibiting the modification of habitat even though there was no actual injury to Endangered or Threatened wildlife or plants (F.R. 6/2/81). Some witnesses, however, felt that the term should be legislatively defined.

Before May 15, 1982, both the House and the Senate will have completed their analyses of the Act and, most lifely, will have developed draft legislation to amend it, as needed. Final legislation should be signed by September 30, 1982, the expiration date of the current Act.

New Publications

A new publication, *An Illustrated Guide to the Endangered, Threatened and Sensitive Vascular Plants of Washington* is available for $6.00 from the Washington Natural Heritage Program, 3111 Seminar Building (SE 3109), The Evergreen State College, Olympia, Washington 98505. The number of copies is limited. Included for each species are scientific name, common name, family, and State and Federal status categories. Prominent characteristics, habitat, range, number of recent occurrences, threats and land ownership are summarized. A line illustration and a dot map showing county distribution are included.

Single copies of "Rare Species of Native Ohio Wild Plants" are available at no charge from the Division of Natural Areas and Preserves, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224 (614/265-6466). This list contains 202 endangered, 190 threatened, 193 potentially threatened, and 96 presumed extirpated plant species. It differs significantly from the 1980 State plant list.

A report entitled "Potential Present Range of the Blackfooted Ferret as of January 1, 1981" has been completed and distributed. Copies are available from Maurice Anderson, U.S. Fish and Wildlife Service, P.O. Box 250, Pierre, South Dakota 57501.

"Guidelines for Transport and Preparation of Shipment of Live Wild Animals and Plants," a manual for shippers, handlers, and importers of live wild animals and plants is now available for $13.00 from UNIPUB, 345 Park Avenue South, New York, New York 10010. This manual, which has been endorsed by the Conference of Parties (New Delhi, India—1981) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), is also available in French and Spanish.

The 1979 U.S. Annual CITES Report which summarizes U.S. international trade in CITES listed species is now available. The report may be purchased in printed form ($18.00) or in microfiche form ($4.00) from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161 (703/487-4650). Requests for report number PB 82–128646 should be made to the attention of the sales desk. Purchase requests may be made by telephone if the purchaser has an account with NTIS or if the purchaser has a major credit card.

Single copies of the October 1981 report entitled "Selected Freshwater Invertebrates Proposed for Special Concern in Massachusetts" are available from Arthur J. Screpetis, Massachusetts Division of Water Pollution Control, Lyman School—Westview Building, Westborough, Massachusetts 01581 (617/366-9181). When requesting a copy, please enclose 75¢ in U.S. postage stamps to cover mailing expenses.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	ENDANGERED U.S. & Foreign	ENDANGERED Foreign Only	THREATENED U.S. Only	THREATENED U.S. & Foreign	THREATENED Foreign Only	SPECIES* TOTAL
Mammals	15	17	224	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	51	2	0	7	1	2	63
TOTAL	193	43	445	45	7	24	757

*Separate populations of species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the leopard, gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 10 animals
9 plants

Number of Critical Habitats Listed: 50
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 50
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

February 28, 1982

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Endangered Species Program, Washington, D.C. 20240

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Technical Bulletin

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Endangered Species Program, Washington, D.C. 20240

Recovery Plan for Virginia Round-leaf Birch is Approved

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The Virginia Round-leaf Birch Recovery Plan was signed March 3, 1982, marking the first time such a plan has been approved by the Fish and Wildlife Service (FWS) for a listed plant. Prepared under contract by Terry L. Sharik, School of Forestry and Wildlife Resources, Virginia Polytechnic Institute and State University (VPI & SU), the document is expected to serve as a guide when there are other plants with similar recovery needs in the future.

Background

The Virginia round-leaf birch (*Betula uber*) is known from a single population in Smyth County, southwestern Virginia. It was originally discovered by W. W. Ashe in 1914, but attempts to relocate the birch during the 1950's and 1960's were unsuccessful. Later, in 1974, Peter Mazzeo of the National Arboretum rekindled interest in *B. uber* after discovering an undated herbarium specimen collected by H. B. Ayers. Mazzeo's reports prompted a local biologist, D. W. Ogle, to conduct a new search for the birch and, in 1975, the species was rediscovered along the banks of Cressy Creek. It was listed as Endangered in 1978.

Subsequent surveys located at least 40 individuals of *B. uber*. Despite several intensive searches since 1975 of Cressy Creek and adjacent watersheds, no additional populations or individuals have been found. As of July 1980, 20 individuals remained along the creek, with no new recruitment to the population since before 1975. Factors in this decrease include removal of seedlings for cultivation elsewhere, other human activities, and natural causes. The remaining trees along the creek exhibit various degrees of reduced vigor due to a combination of natural factors (primarily overtopping by other trees) and human activities (stress from overcollection of material for research and propagation purposes).

Early Conservation Efforts

The round-leaf birch population is located on three adjacent properties. In 1976, the two private landowners erected high fences around their segments of the population. Later that year, the U.S. Forest Service (UFS) wrote a plan to protect the two trees (including the largest individual of *B. uber* known) located in the Mount Rogers National Recreation Area, Jefferson National

Continued on page 4

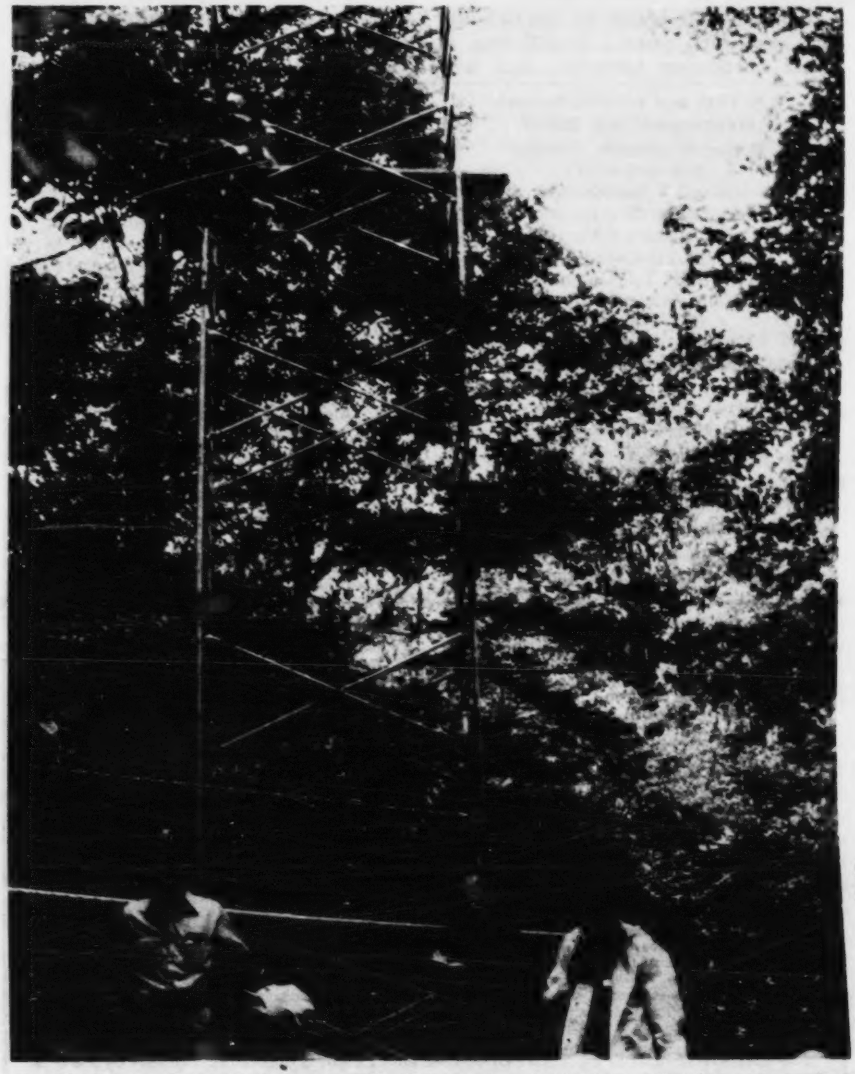
Photo by E. LaVerne Smith

Scaffolding was erected next to this Betula uber *individual, allowing researchers to gather pollen and other materials for laboratory study.*

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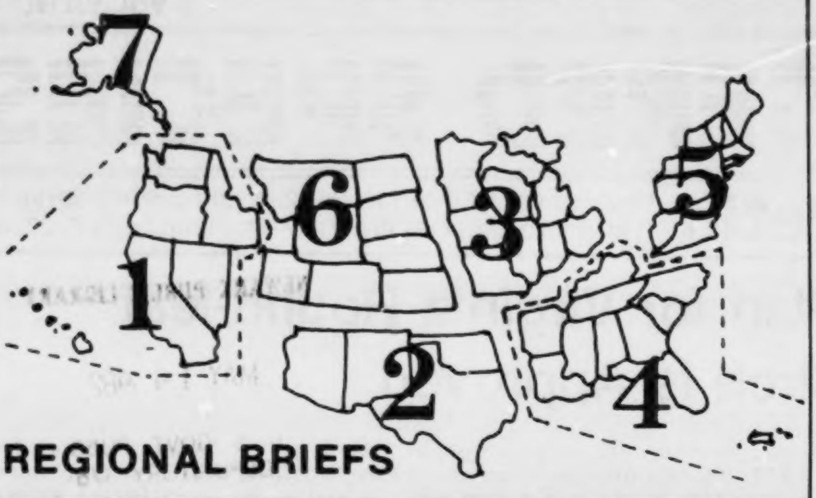

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of March.

Region 1—On March 10, two defendants were each given a $1,600 fine, a 1-year suspended sentence, and 300 hours of community service in a Los Angeles court for shooting a bald eagle (*Haliaeetus leucocephalus*). The bald eagle in question was part of a program to reintroduce the species to Santa Catalina Island in the Southern California Bight. Eagle chicks removed from nests in the Northwest are fledged at hack sites on the island.

Between 50 and 75 bald eagles were observed on the Ft. Lewis Military Reservation along the lower Nisqually River north of Olympia, Washington, in February. This is an unprecedented high count, partially attributable to a reduced food supply (salmon) on other river systems to the north and an unusually large return of chum salmon in the Nisqually system. Service efforts in this area are increasing in response to the expanding eagle population and the increased pressure on the resources from commercial fishing interests and military activities.

The Service has allocated $30,000 in Fiscal Year 1982 funds for Morro Bay kangaroo rat habitat rehabilitation. On-the-ground work to set back plant succession in chaparral habitat (creating open interspaces in otherwise dense shrub cover) will be preceded by a study to determine the most appropriate manipulation method for improving kangaroo rat habitat.

Service representatives from the Sacramento office are helping to develop an interagency management plan for the Tijuana River Estuarine Sanctuary, which is habitat for three Endangered species: the California least tern (*Sterna albifrons browni*), light-footed clapper rail, (*Rallus longirostris levipes*), and salt marsh bird's beak (*Cordylanthus maritimus* ssp. *maritimus*). The 505 acres of national wildlife refuge lands, along with the U.S. Navy and California State Parks and Recreation lands, will be managed jointly under the plan, in accordance with the Estuarine Sanctuary Program of the Coastal Zone Management Act. Primary emphasis is given to coordinating public use and natural resources objectives, relative to Federal and State listed species, as well as numerous other sensitive species.

Region 2—Approximately 375,000 razorback suckers (*Xyranchea texanus*) were stocked in the Salt River on March 16. A second release of 300,000 is planned for April 6 as part of the continuing conservation effort for the species being conducted in lieu of listing.

A male and female ocelot (*Felis pardalis*) were recently radio-collared as part of a research contract with San Angelo University in Texas. The pair is now being tracked in their south Texas range.

A number of springs around Bylas, Arizona, have been rehabilitated to eliminate the non-native mosquitofish (*Gambusia affinis*) which had recently invaded these spring habitats of the Endangered Gila topminnow (*Poeciliopsis occidentalis*). The remaining topminnows, snails, and aquatic vertebrates

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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had been removed from the springs and their outflows prior to the application of the toxic chemicals used for fish control, and were replaced later after the chemicals dissipated.

The two small bald eagle chicks whose nest tree was imperiled by the rising Horseshoe Reservoir in Arizona (see March 1982 BULLETIN) were removed literally moments before the nest was inundated. The chicks were held at the Phoenix Zoo while attempts were made to reestablish the nest above flood levels. When these attempts failed, the chicks were placed in a nearby bald eagle nest whose adult pair was trying to incubate non-viable eggs. The pair readily accepted the chicks and began feeding them immediately.

A different bald eagle adult, thought to be a female, recently disappeared from its territory shortly after being seen in combat with a golden eagle (*Aquila chrysaetos*) over Tonto National Forest, Arizona. The remaining adult then became disinterested in feeding its 3-week old chick. After 6 days without the chick being fed, U.S. Forest Service (USFS) biologists took it and began feeding it. In cooperation with the FWS, the USFS took the chick to a distant nest where another chick had disappeared. There it was accepted and fed by the resident bald eagle pair.

Region 3—Endangered Species Staff members met recently with representatives of the Iowa Department of Conservation to discuss contract work on the bald eagle, Indiana bat (*Myotis sodalis*), Higgins' eye pearly mussel (*Lampsilis higginsi*), and Iowa Pleistocene snail (*Discus macclintocki*).

Work is progressing on a new miniature telemetry package to be used in research on the Kirtland's warbler (*Dendroica kirtlandii*). The transmitter, which will weigh 1.2 to 1.3 grams, is being developed by Clyde Jones and his staff at the Denver Wildlife Research Center. Prior to use on the Kirtland's warbler, which weighs an average of 14 grams, it will first be tested on a similar-sized, migratory species. The transmitter is expected to have applications for research on a wide variety of bird species.

Region 4—The Florida Game and Fresh Water Fish Commission has reported the radio collaring of six Florida panthers (*Felis concolor coryi*) in south Florida. Two males and two females have been collared in the Fakahatchee Strand area. One of these females was pregnant and had to have buckshot removed during the tagging operation. Two males have also been tagged in the Raccoon Point area of the Big Cypress National Preserve.

Funding has been approved for divers from the Tennessee Valley Authority and the Service to conduct a survey to determine if the main channel of the Tennessee River contains a viable self-sustaining population of snail darters (*Percina tanasi*).

In order to determine potential hacking sites for peregrine falcons (*Falco peregrinus*), the Service and the North Carolina Wildlife Resources Commission are conducting a survey on the great-horned owl (*Bubo virginianus*), a potential predator on young peregrines. The peregrine hacking effort is scheduled to begin in 1984.

Five Mississippi sandhill cranes (*Grus canadensis pulla*) have been released on the Mississippi Sandhill Crane National Wildlife Refuge. These cranes were young-of-the-year obtained from the Patuxent Wildlife Research Center. Each crane was radio-collared to determine movements and habitat utilization.

Region 5—The Virginia Round-leaf Birch Recovery Plan has been approved (see the story in this month's BULLETIN), the Chesapeake Bay Bald Eagle Recovery Plan has been submitted to the Director for approval, and the Delmarva Fox Squirrel Recovery Plan, originally approved in 1979, has been revised, and submitted to the Washington office.

Adult peregrine falcons (*Falco peregrinus*) are returning to nesting towers in Virginia and New Jersey, and an increase in numbers of nesting pairs is anticipated for this season.

Plans are progressing for a repeat of last summer's intensive public information and education program on the Robbins cinquefoil (*Potentilla robbinsiana*). One of the few populations of this plant is found along the Appalachian Trail in the White Mountains of New Hampshire. The program is a cooperative effort of the Fish and Wildlife Service, the U.S. Forest Service, and the Appalachian Mountain Club.

Region 6—The Wood Buffalo-Aransas whooping crane (*Grus americana*) flock is monitored each spring and fall during migration. According to the Service's Pierre, South Dakota, office, which accumulates the sightings, there were 58 confirmed and probable sightings in fall 1981. Recorded observations of migrant whoopers began on August 30 in Canada and September 29 in the U.S. Sightings were reported from Alberta (3) and Saskatchewan (16) in Canada, and Montana (1), North Dakota (6), South Dakota (3), Nebraska (6), Kansas (6), Missouri (1), Oklahoma (8), and Texas (8). Arrivals at the Aransas National Wildlife Refuge in Texas began on October 22.

The status of the interior least (little) tern (*Sterna albifrons athalassos*) is drawing attention as more information on the species is compiled. In 1981, Regions 2, 3, 4, and 6 assembled the available information, and James E. Ducey consolidated it into a summary report. The report may result in a concerted field effort toward determining an improved understanding of the status of the species.

In February, a meeting was held in Manhattan, Kansas, to discuss current studies and management activities for the least tern. State, Federal, and private organizations were represented. Of ultimate concern was what can be done through coordinated activities to improve and standardize the information base for least tern populations and their habitat. The group recognized the need for more precise information about the tern, but also acknowledged the limited funding available. The recommendations encourage interested parties to (1) determine least tern distribution, (2) determine the adult-subadult population, (3) conduct a periodic, Statewide status survey once every 3 years (targeted to start in 1983), (4) identify habitat being used and threats to that habitat, (5) inform other State and Federal biologists of management techniques developed and other studies conducted, and (6) funnel information to a central record-keeping location (to be determined).

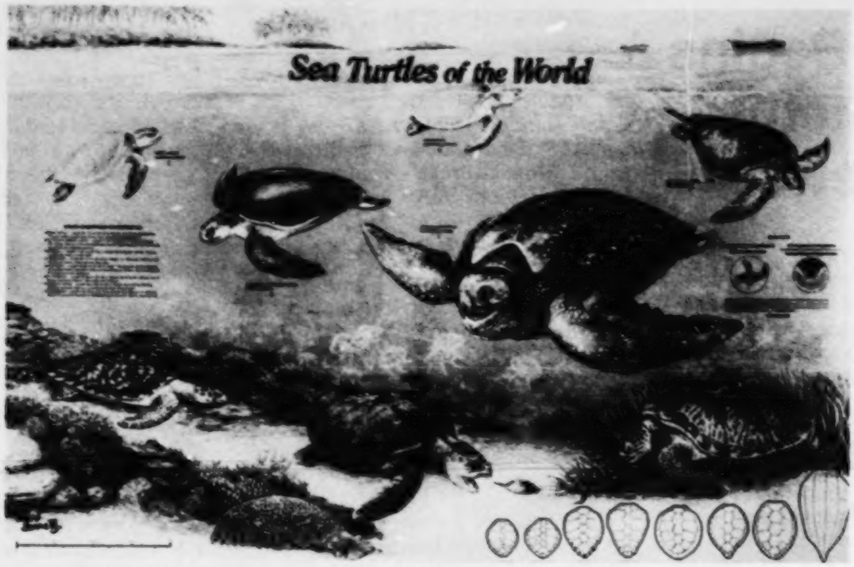
In February, the Billings office hosted a meeting on management of grizzly bears (*Ursus arctos horribilis*) in the

Continued on page 6

Courtesy of Aransas National Wildlife Refuge

*Whooping cranes (*Grus americana*) in flight over Aransas National Wildlife Refuge.*

Sea Turtle Identification Poster Available


Sea Turtles of the World

Pictured above is the new sea turtle identification poster jointly developed by the National Marine Fisheries Service and The Sea Turtle Rescue Fund of the Center for Environmental Education. Seven of the eight species of sea turtle are protected under the Endangered Species Act of 1973.

A full-color sea turtle poster, designed to assist in the proper identification of eight sea turtle species, has been jointly developed by the National Marine Fisheries Service (NMFS) and The Sea Turtle Rescue Fund of the Center for Environmental Education (CEE). The poster is meant to be of specific use to volunteer workers upon whom many sea turtle protection efforts depend, and to be of educational use for the general public.

Printed on a water-resistant surface, the 24 × 36 inch poster depicts each of the eight sea turtle species in their natural habitats. Artist Marvin Bennett, under the technical supervision of Dr. Peter C. H. Pritchard, has faithfully rendered each species to allow a sea turtle observer a means of identifying an encountered animal. It is vivid in its detail and in depicting characteristic behavior of each species.

The first copy of the poster was given by representatives of NMFS and CEE to Dr. Archie Carr, Jr. at a ceremony held at the Main Commerce Building in Washington, D.C. on March 18, 1982. Dr. Carr was recognized for his important contribution to sea turtle conservation, both in the United States and abroad.

Single copies of the poster may be obtained free of charge from the NMFS Washington and regional offices or by contacting Charles A. Oravetz, National Marine Fisheries Service, Southeast Region, 9450 Koger Boulevard, St. Petersburg, Florida 33702 (813/893-3366 or 813/893-3720).

VIRGINIA ROUND-LEAF BIRCH

Continued from page 1

Forest. Among its recommendations were fencing-off the two trees, construction of visitor information facilities near the large tree, notification of persons and agencies in the area whose activities could affect the population, and development of a research plan. Most of the USFS recommendations had been carried out by the time the plan was released in late 1976.

Management was further enhanced by creation of the *Betula uber* Protection, Management, and Research Coordinating Committee. This committee acts as an informal recovery team, and is comprised of representatives of the FWS, USFS, VPI & SU, National Arboretum, and Virginia Department of Agriculture and Consumer Services. No undocumented removals of individuals have occurred since formation of the committee and access to materials on public land was controlled. Three trees and one other seedling have died of natural causes. A new coordinated search for other populations was conducted during the summer of 1977 but, as with the earlier efforts, none were found.

Propagation efforts for *B. uber* have been concentrated at the National Arboretum in Washington, D.C., and this facility has the responsibility for disseminating living and dead specimens. During 1975–1977, approximately 50 individuals were produced from rooted cuttings which originated from current shoots of three saplings growing at the Arboretum. Forty of the individuals propagated from cuttings remain at the Arboretum, while the remaining ten have been distributed to seven different botanical garden locations. Unfortunately, production of additional individuals from cuttings of older trees and germination from seeds has been largely unsuccessful.

Research

A research program for *B. uber* was initiated in 1978 when the coordinating committee convened a group of biologists with experience in other birch species to develop a research plan. The first two recommendations of this advisory panel were that any research efforts which might alter the natural population be postponed until a detailed population assessment is made, and that vegetative propagation at the Arboretum be continued in order to maintain the gene pool, provide individuals for establishing additional wild populations, and produce material for studies of reproductive biology and genetics. Three specific areas of research were given

Continued on page 5

Rulemaking Actions —March 1982

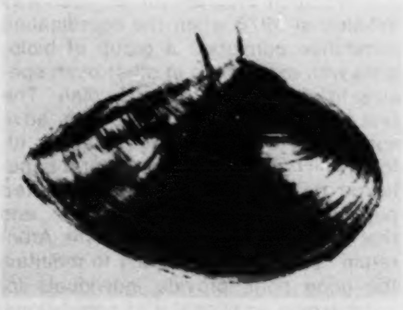
Service Begins Two Status Reviews

The Service is reviewing the status of the Tar River spiny mussel (*Canthyria* sp.) and the spotted bat (*Euderma maculatum*) to determine if these species should be added to the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 3/5/82 and F.R. 3/8/82, respectively.) The Service is seeking additional biological data on these species as well as information on environmental and economic impacts and effects on small entities that would result from listing them.

Tar River Spiny Mussel

The Tar River spiny mussel is believed to exist only within the Tar River, North Carolina. It has been identified by the North Carolina Wildlife Resources Commission as a species whose numbers appear to have been significantly reduced. The Service has also received two unsolicited research proposals on this species which include information on the mussel.

Even though malacologists have repeatedly surveyed the Tar River for this mussel, fewer than 20 specimens have been observed since it was first discovered in the Tar River at Tarboro, Edgecombe County, North Carolina, in 1968. Little is known of the mussel's life history. It appears most threatened by siltation resulting primarily from agricultural runoff. However, water projects such as reservoir, sewage treatment facilities, and channel clearance projects may have had a negative impact on the species in the past. Although it has yet to be described, it is considered to be a valid species.



A spiny mussel. Reprinted from the Proceedings of a Symposium on Rare and Endangered Mollusks (Naiads) of the U.S., *U.S. Fish and Wildlife Service.*

Information regarding the status of this species should be submitted on or before June 3, 1982, to the Area Manager, U.S. Fish and Wildlife Service, 50 South French Broad Avenue, Plateau Building, Room A-5, Asheville, North Carolina 28801.

Spotted Bat

The distribution of the spotted bat, *Euderma maculatum*, is restricted to western North America. It ranges from the Mexican Plateau in the State of Queretaro to the southern border of British Columbia. Although this bat is widely distributed, its occurrence within its known range is very local and patchy.

Euderma maculatum was first collected in March 1890 but by 1959, only 16 specimens had been obtained. Because of increased numbers of biologists working on bats and because of improved techniques for capturing and studying bats, more specimens, new locations, and several small but viable populations have been found in the past 2 decades.

The known viable populations of *Euderma* in the United States occur on lands of the National Park Service in Big Bend National Park, Texas; the U.S. Forest Service in the Gila and Santa Fe National Forest, New Mexico; and on public lands administered by the Bureau of Land Management in the St. George, Utah, District. Most of the other known sites of occurrence also come within the boundaries of lands controlled by one or more of the above Federal agencies.

Even though an apparently large literature base on the species does exist, little substantial knowledge is available on population ecology of *Euderma*. A detailed description of preferred crevice location and internal micro-climate is needed. As with other plecotine bats, *Euderma* probably does not migrate great distances and appears to be particularly sensitive to human disturbance.

Arizona, Nevada, Utah, and Wyoming have designated the spotted bat as a species deserving special consideration. This classification by State wildlife agencies, however, provides only limited protection; disturbance and modification of habitat are not included among State prohibitions.

Comments and data submitted in connection with this review should be submitted on or before June 7, 1982, to the Director (Office of Endangered Species), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

VIRGINIA ROUND-LEAF BIRCH

Continued from page 4

priority: population ecology, reproductive biology, and evolutionary relationships.

The *B. uber* population at Cressy Creek occurs within a much larger population of related dark-barked birch species (*B. lenta* and *B. alleghaniensis*.) Accordingly, the studies of population ecology are to involve the life cycles of all three species. Investigations of reproductive biology, to be conducted primarily on specimens vegetatively propagated, will include the cellular genetics of reproductive structures, pollen analysis, and studies of controlled crosses between individuals of *B. uber* and *B. lenta*.

Recovery Recommendations

Many of the specific steps outlined in the recovery plan are continuations of previous efforts. Management of the wild population and its habitat will be facilitated by fencing, posting of "no trespassing" signs, a closure order on national forest property, erosion control, and working with property owners. The trees will be monitored for general condition and incidence of disease/insect infestation. Work will continue on vegetative propagation (along with distribution of propagated specimens), and seed and pollen banks will be established.

A determination of essential habitat requirements, including microclimate, soils, and associated vegetation, is another important part of the recovery plan. As is true with other birches, *B. uber* might be characterized as a pioneer species which invades disturbed areas, and without periodic disturbance it may not maintain itself on a local scale. Natural regeneration of *B. uber* at the Cressy Creek site will be encouraged through selective removal of competing vegetation, preparation of seedbeds, and continued monitoring of individuals. The plan also calls for establishment of additional natural populations.

Public information programs will continue as another significant facet of the recovery plan. At the Mount Rogers National Recreation Area, the USFS has installed signs and an elevated walkway directing visitors to the largest individual of *B. uber* (which is fenced), to channel public access and for environmental education purposes.

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Copies of the Virginia Round-leaf Birch Recovery Plan are available from the Regional Office, U.S. Fish and Wildlife Service, Suite 700, One Gateway Center, Newton Corner, Massachusetts 02158 (Attn: Dick Dyer).

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982 - 361-580 - 141/108

Conference

The First Bicentennial Conference on Research in California's National Parks will be presented by the Cooperative Park Studies Unit, University of California, Davis, September 9–10, 1982. The purpose of the conference, which will be held in Davis, is to provide a scientific forum for the presentation and discussion of research related to the biological and sociological resources of California's National Parks. It is designed for anyone who has conducted research in or is interested in National Park Service research and resource management. For more information call 916/752-7119.

New Publication

The *U.S. List of Endangered and Threatened Wildlife and Plants* (50 CFR 17.11 and 17.12), reprinted January 1, 1982, is now available. Please request copies from Office of Public Affairs—Publications, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	ENDANGERED U.S. & Foreign	ENDANGERED Foreign Only	THREATENED U.S. Only	THREATENED U.S. & Foreign	THREATENED Foreign Only	SPECIES* TOTAL
Mammals	15	17	224	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	51	2	0	7	1	2	63
TOTAL	193	43	445	45	7	24	757

*Separate populations of species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the leopard, gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 10 animals
9 plants

Number of Critical Habitats Listed: 50
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 51
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

March 31, 1982

REGIONAL BRIEFS

Continued from page 3

Yellowstone Ecosystem. Representatives of two National Parks, five National Forests, three States, Bureau of Land Management, and FWS met to review management of grizzly bears and their habitat. Also in February, Billings personnel attended a meeting on grizzly bear relocation guidelines. In attendance were representatives from the U.S. Forest Service, Bureau of Land Management, National Park Service, Bureau of Indian Affairs, and Montana Department of Fish, Wildlife and Parks. Attendees reviewed sites and procedures for relocating problem grizzly bears in 1982.

A Montana Bald Eagle Working Group has been formed, and in January, the FWS, Montana Department of Fish, Wildlife and Parks, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Forest Service, and university scientists met to coordinate efforts on the bird in Montana. In February, the group met to establish procedures and coordination for a Statewide bald eagle nesting survey in Montana in 1982.

The Wyoming Game and Fish Department will be the lead agency in black footed ferret (*Mustela nigripes*) recovery in Wyoming. The department has established a Black-footed Ferret Advisory Team (BFAT), consisting of representatives from the Wyoming Game and Fish Department, Bureau of Land Management, Forest Service, FWS, University of Wyoming, and private landowners. Any input pertinent to the Service should be directed to the Endangered Species Coordinator at the FWS Billings office.

Region 7—The Japanese Conservation Bureau has formally requested from the Service a loan of Aleutian Canada goose (*Branta canadensis leucopareia*) breeding pairs to help that country reestablish a wintering population of the Endangered bird. Aleutian Canada geese historically wintered in Japan, as well as from British Columbia to California in North America.

April 1982 Vol. VII No. 4

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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Department of Interior. U.S. Fish and Wildlife Service
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Senate Hearings Held on Reauthorization Bill

Testimony on S.2309, a U.S. Senate bill to reauthorize and further amend the Endangered Species Act of 1973, was given on April 19 and 22, 1982, before the Environmental Pollution Subcommittee, Committee on Environment and Public Works. The hearings were another step toward extension of the Act, which expires September 30, 1982.

The bill to reauthorize Endangered Species Act appropriations for 3 years was introduced on March 30, 1982, by subcommittee chairman Senator John H. Chafee (R-RI) on behalf of himself, Senator Slade Gorton (R-WA), and Senator George J. Mitchell (D-ME). "Based upon a recognition of the interdependent nature of man and his environment," Senator Chafee said, "the 1973 Act is crucial to the future well-being of mankind." Senator Chafee opened the hearings on the bill with a statement that it is intended to "maintain the integrity of the Endangered Species Act" while offering legislative solutions to several matters of concern voiced at the December 8 and 10, 1981, oversight hearings.

One issue addressed in S.2309 is the "experimental population" concept. As defined in the bill, the term would apply to any population of a listed species that is released, for approved conservation purposes, outside the species' current range, provided that the experimental population is wholly separate geographically from nonexperimental populations. Under the amendment, an experimental population deemed necessary for conservation of a species would be treated as a Threatened population, which would allow for increased management flexibility. Experimental populations determined not essential would be treated as populations proposed for listing (except for experimental populations occurring on national wildlife refuges). No Critical Habitat would be designated for nonessential populations.

Among the changes that would occur in the listing process is a requirement concerning action on petitions to add a species to, or remove it from, the U.S. List of Endangered and Threatened Wildlife and Plants. If the petition is judged to contain substantial scientific information, a decision on whether or not to proceed with the action would have to be published within one year of receipt of the petition. Procedures on implementation of Section 4, including priority systems designed to rank species for listing and recovery actions, would also be published in the *Federal Register*.

The Federal share of Section 6 State cooperative agreement program costs would be increased from 66 2/3 percent to 75 percent, and from 75 to 90 percent when two or more States have joint endangered species projects. These formulas would bring endangered species grant cost-sharing ratios into alignment with other Federal programs to aid fish and wildlife restoration. Under S.2309, endangered species funding assistance to the States could be appropriated up to $6 million for each of Fiscal Years 1983, 1984, and 1985.

A number of amendments would be made in Section 7 of the Act under the Senate bill. Among the changes would be a streamlining of the exemption process. The initial review board would be abolished, and its function would be transferred to the Secretary of the Interior (or Commerce, as appropriate), who would make the threshold decisions and prepare the reports to the Endangered Species Committee (ESC). The new process would allow 20 days for the threshold decision, 150 days for the report, and 30 days for the ESC decision,

Continued on page 6

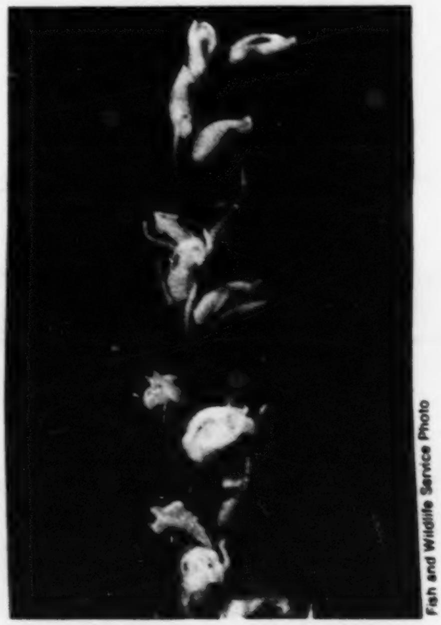
Texas Orchid Listed as Endangered

By E. LaVerne Smith

Spiranthes parksii (Navasota ladies'-tresses) was determined Endangered on May 6, 1982, and will now receive protection under the Endangered Species Act. Critical Habitat for this orchid was not determined because of the threat of overcollection.

Fewer than 20 individuals of the plant are known to exist today in two populations within Brazos County, Texas. One population occurs near College Station, where urbanization is increasing. The second is on a ranch where the primary use of the land is hunting. Both sites are privately owned and neither population was under protective status. Due to its rarity and the widespread interest in orchid cultivation, this species may also be sought by collectors. The extremely small total population sizes make *Spiranthes parksii* highly vulnerable to extinction.

Continued on page 4



Fish and Wildlife Service Photo

Spiranthes parksii, *an extremely rare orchid, was listed as Endangered this month.*

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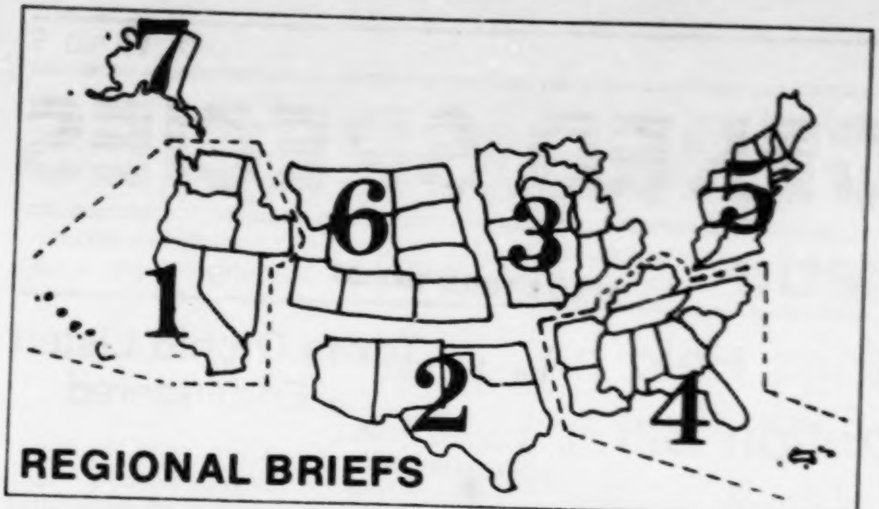

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of April:

Region 1—The Service's Pacific Islands Area Office in Honolulu, Hawaii, will conduct a forest bird survey for the Mariana Islands (Rota, Tinian, and Saipan) from March 8 to June 14, 1982. The survey team includes John Engbring, Supervisory Biologist, and his team members, Celestino Aguon, Phillip Ashman, and Peter Pyle. Guam will be used as a base of operations for the survey. On Saipan a training session will be conducted on survey methodology and forest bird identification for the Department of Natural Resources staff. On Ponape the census methodology will be tested for cover/terrain characteristics of that island. Throughout the trip, Engbring will be meeting with government officials and acting in a liaison capacity. The survey has been scheduled to coincide with the most favorable weather conditions and the period of most active nesting for forest birds. At other seasons of the year, heavy rains and/or typhoons might be encountered, or birds may be considerably less active and thus overlooked on the survey.

Recently, a Canadian investment firm acquired 19,000 acres of undeveloped land in the Coachella Valley, California. The area, which includes a majority of the Critical Habitat for the *Threatened* Coachella Valley fringe-toed lizard *(Uma inornata)*, represents the largest contiguous parcel ever assembled in the Coachella Valley. Although no official development plans have been announced, indications are that the firm anticipates providing facilities for the fast growing computer industry. It is not clear at this time how much of the area will be developed, and therefore the potential impacts to the lizard are largely unknown. It may be possible to work out agreements with the developers for protection of the lizard while plans are still in the formulation stage.

Copies of the approved Southern Sea Otter Recovery Plan are available from the Fish and Wildlife Reference Service, Unit 1, 3840 York Street, Denver, Colorado 80205 (800/525-3426), at a cost of 10¢ per page, 70 pages. The plan outlines a program to recover the southern sea otter *(Enhydra lutris nereis)* to the non-threatened status by establishing one or more additional colonies within the otter's range. Prior to translocation, however, several studies are necessary.

The plan outlines additional monitoring activities, and suggests several ways to reduce the threat of oil spills. Upgrading of law enforcement and public education activities are also recognized as very important to the recovery effort.

Region 2—Another 250,000 razorback suckers *(Xyrauchen texanus)* have been stocked in the Salt River, Arizona, bringing the year's total to about 700,000.

This summer's personnel and equipment for the Kemp's Ridley sea turtle *(Lepidochelys kempii)* nesting beach project at Rancho Nuevo, Mexico, are assembled in Texas but, as of May 3, the necessary permit from the Departmento de Tesca had not been received.

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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No conservation actions can be undertaken without this permit. The region anticipates that the permit will be issued in early May.

The leopard darter *(Percina pantherina)* listing and Critical Habitat designation was upheld by the U.S. Court of Appeals for the 10th District. In an opinion issued April 12, the Federal listing was affirmed and the litigation was dismissed for lack of standing on the part of the plaintiffs, the Glover River Organization.

Region 3—The final draft of the Gray Bat Recovery Plan has gone to the Director for approval; the technical review draft of the Northern States Bald Eagle Recovery Plan and the agency review draft of the Higgins' Eye Pearly Mussel Recovery Plan are both out for comment.

A bald eagle *(Haliaeetus leucocephalus)* pair is nesting this spring in Missouri, which is the first confirmed nesting in that State since the early 1960's. A protective zone has been established around the nest tree. Further information will appear in future issues of the BULLETIN.

Region 4—The commissioners of the Florida Game and Fresh Water Fish Commission have recently voted to prohibit the artificial feeding of the Endangered Key deer *(Odocoileus virginianus clavium)*. This proposed regulation will prohibit such activities by the public as the actual feeding of deer, the attempt to feed, and the enticement of deer with food. The State anticipates that this regulation will become effective in early June.

Four status surveys have been approved for animals and plants in the Atlanta Region. The Denver Wildlife Research Center Field Station in Belle Chasse, Louisiana, will study the Louisiana and black pine snakes (*Pituophis melanoleucus ruthveni* and *P.m. lodingi*, respectively) and the gopher tortoise *(Gopherus polyphemus)* where its range overlaps that of the snakes. Pine snakes, like the Threatened eastern indigo snake, *(Drymarchon coris couperi)* are often associated with gopher tortoise burrows. Another status survey covers four Florida sand scrub plants: *Lupinus aridorum*, *Lupinus westianus*, *Dicerandra cornutissima*, and *Dicerandra frutescens*. The other two surveys deal with the Tar River spiny mussel (*Canthyria* sp.) and the Puerto Rican sharp-shinned hawk *(Accipiter striatus venator)*.

The large and as-yet-unexplained die-off of manatees *(Trichechus manatus)* in the Ft. Myers area of Florida has continued. The die-off started in February and, as of May 1, there had been at least 37 dead manatees reported from the general vicinity of the Caloosahatchie River outlet. Investigations by the National Fish and Wildlife Laboratory in Gainesville, Florida, have not confirmed the reasons for the mortalities, but red tide organisms are suspected. Necropsies show that the manatees have ingested tunicates, commonly known as "sea squirts," which are known to filter out and hold the red tide toxins.

Region 5—Peregrine falcons (*Falco peregrinus)* have returned to the Franconia Notch area of New Hampshire where they successfully nested last year. At least four other pairs are on eggs or have young in New Jersey. Several other pairs are also known in the area from Chesapeake Bay northward.

Bald eagle chicks produced at the Patuxent Wildlife Research Center have been successfully introduced into nests in New Jersey and New York.

Region 6—In the summer of 1981, western South Dakota and western Kansas were used as test areas where posters, newspaper articles, radio and television announcements, and local contacts were used to attempt stimulating reports of black-footed ferrets *(Mustela nigripes)*. Fifteen sightings were reported in South Dakota and eleven in Kansas. Although no ferrets were located, about 25 percent of the observations were determined to be "probable" sightings of black-footed ferrets. This work will continue in the summer of 1982.

Recent studies by Jim Enderson, Colorado College; Jerry Craig, Colorado Division of Wildlife; and Bill Burnham and Dan Berger, Peregrine Fund (Fort Collins, Colorado) have shown that the eggshells of American peregrine falcon *(Falco peregrinus anatum)* eggs laid in the wild in Colorado in 1981 were encouragingly thicker than those laid from 1973 to 1980. The wet weight content of DDE (a metabolite of DDT) in peregrine eggs in 1980 averaged 13 parts per million (ppm), a large drop from the 20 ppm found in egg contents through 1979. A major part of the DDE being picked up by peregrines is probably obtained from migrant insectivorous prey the falcons eat. Collections and analyses of 29 prey species of birds available to peregrines show that migrants often contained well above 1.0 ppm DDE, a level of contamination which has been shown in other studies to be sufficient to produce the degree of shell-thinning observed in Colorado peregrines. Since DDT is banned from use in the U.S., it is believed that the migrant prey species are picking up the DDT in the winter when they are south of the U.S. This belief is backed by the fact that some other raptors which do not feed on migrant insectivores, such as the bald eagle *(Haliaeetus leucocephalus)*, have made a stronger comeback than peregrines since DDT was banned.

The final report on the White River Fishes Study was submitted to the Bureau of Land Management by the Service's Colorado River Fisheries Study Team. Habitat in the White River (Utah) does not appear suitable for bonytail chubs *(Gila elegans)*, humpback chubs *(Gila cypha)*, or razorback suckers *(Xyrauchen texanus)*. No razorback suckers or bonytails were collected during the study, and only one suspected humpback was collected. However, a number of Colorado squawfish *(Ptychocheilus lucius)* were captured and substantial data were obtained on squawfish. One of the more interesting findings was a 382-mile movement in 5 months by a radio-equipped Colorado squawfish. Part of the mileage involved a 129-mile swim downriver and a subsequent return. This information, plus data gained from other radio-equipped and tagged squawfish showed that

Photo by W. H. Julian

New regulations will prohibit the artificial feeding of the Endangered Key deer.

RULEMAKING ACTION— April 1982

Texas Orchid Listed

Continued from page 1

Background

Spiranthes parksii was first collected by H.B. Parks along the Navasota River in 1945. D.S. Correll described the species in 1947, based upon the Parks collection. Subsequent efforts to relocate the species in the late 1940's and 1950's were unsuccessful, and it was thought to have become extinct. Fortunately, however, P.M. Catling rediscovered the species in Brazos County near College Station in 1978. Recent searches have resulted in rediscovery of a second population near the type locality.

Spiranthes parksii is a small herbaceous perennial orchid which measures approximately 30 cm tall. Most of the leaves are basal and grass-like. The flowering stalk is slender, bearing spirally arranged, small, white flowers with a green mid-vein. This orchid occurs in post oak woodlands. *Spiranthes parksii* is one of the rarest and least known orchids of North America.

Legislative and Regulatory History

Actions leading to Federal protection for this orchid began in 1973 with the inclusion of plants in the Endandered Species Act. Section 12 of the 1973 Act directed the Smithsonian Institution to compile a report on Endangered, Threatened, and extinct species. The resulting 1975 report included *Spiranthes parksii;* it was treated as a petition by the U.S. Fish and Wildlife Service, and published as a notice of review on July 1, 1975. This action was followed on June 16, 1976, by a proposal to list a number of plants, including *Spiranthes parksii*. Due to subsequent requirements of the 1978 Amendments to the Act, the 1976 proposal was withdrawn. *Spiranthes parksii* was reproposed on June 18, 1980, based on sufficient new information. After complying with Executive Order 12291 and the Paperwork Reduction Act, which require that the potential economic effects of a rulemaking be considered, the Endangered determination was published. Critical Habitat was not determined due to the possibility of further jeopardizing the species.

Protection Under the Act

This rare orchid will now receive the protection of the Endangered Species Act of 1973, as amended, as it applies to plants. Regulations detailing the general prohibitions and exceptions applying to Endangered plants are found at 50 CFR Section 17.61. These prohibitions, in part, make it illegal to import export transport, or offer for sale in interstate commerce spcimens of *Spiranthes parksii*. Taking of Endangered and Threatened plants is not prohibited under the Act, and private landowners are not affected.

Section 7 of the Act provides for interagency consultation, and requires Federal agencies to evaluate the affects of their actions on listed species. No Federally authorized, funded, or permitted actions are known to be jeopardizing the existence of *Spiranthes parksii*. The U.S. Army Corps of Engineers has determined that the Millican Reservoir project will not affect this orchid.

Recovery actions are now required under the Act for this species. Through volunteer conservation agreements or other methods, the Service hopes to negotiate further protection for the two sites occupied by *Spiranthes parksii*. Species biology research, propagation research, proper habitat management, and educational programs are a few of the activites which a recovery plant for this species might address.

Mariculture Operation Exemption Again Sought

The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) have received a petition seeking an exemption for captive-bred green sea turtle *(Chelonia mydas)* products from the existing prohibition in commerce in the species (F.R. 4/1/82). It was filed on January 22, 1982, by the Pacific Legal Foundation and the Association for Rational Environmental Alternatives on behalf of the Cayman Turtle Farms.

Background

The green sea turtle was listed for protection under the Endangered Species Act of 1973, as amended, on July 28, 1978. No exemption for mariculture operations was provided in the final regulation which became effective on September 6, 1978. On August 15, 1978, Cayman, which is engaged in the captive breeding of the species, requested that the mariculture issue be reviewed, and that the regulations be stayed while the decision was being reconsidered. FWS and NMFS agreed to review any new evidence applicable to the regulation, but refused to grant the stay of regulations.

Cayman filed suit in the U.S. District Court for the District of Columbia on September 5, 1978, challenging the agencies' decision. In a Decision Memorandum issued on December 5, 1978, FWS and NMFS restated their rejection of the mariculture operation. The decision was judicially upheld in 1979, in *Cayman Turtle Farm* v. *Andrus*, 478 F. supp. 125 (D.C. Cir. 1979), *aff'd men.*, No. 79-2031 (D.C. Cir. December 12, 1980).

The petitioners are proposing implementation of the exemption by means of a permit provision similar to that proposed by FWS and NMFS in 1975. (See 40 FR 21977, 21985, 1975). Current regulations governing the species are found in 50 CFR Part 17 and Parts 222 and 227 (1980).

REGIONAL BRIEFS

Continued from page 3

some are migratory while others are sedentary. This difference in behavior may be due to sexual maturity, with sexually mature individuals making long distance spawning migrations.

A Memorandum of Understanding was signed with the National Park Service, Yellowstone National Park, for the protection and management of *Agrostis rossiae* (Ross bentgrass). Yellowstone National Park contains the only known population of *Agrostis rossiae* in the world.

A management agreement has also been consummated with the U.S. Forest Service for *Astragalus montii* (Heliotrope milk-vetch), a rare Utah plant that is only known to occur on the Wasatch Plateau in Sanpete County, Utah. (See the February 1981 BULLETIN for more information.)

Region 7—The revised draft of the preliminary Alaska Peregrine Falcon Recovery Plan and the final revised Aleutian Canada Goose Recovery Plan have been submitted to the Director for approval.

The 1982 field season began April 1 when the first returning peregrine falcon was sighted. Migration studies being undertaken this spring and fall will determine the presence of a coastal migration route in the Yakutat area of the Gulf of Alaska. If a major migration route for peregrines or other raptors is found, the feasibility of establishing a trapping and banding station will be examined. Service biologists Phil Schempf, Ted Swen, and volunteer Pete Dunn are conducting the migration study.

CITES News— April 1982

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director—Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S. Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

New Guidelines for Export of Appendix II Species

In the first of a series of notices concerning the export of certain Appendix II species, the Service requested current status data and comments on new guidelines to be used in making export findings for the 1982-83 season (F.R. 4/5/82). Species involved are bobcat *(Lynx rufus)*, lynx *(Lynx canadensis)*, river otter *(Lutra canadensis)*, Alaskan gray wolf *(Canis lupus)*, Alaskan brown bear *(Ursus arctos)*, American alligator *(Alligator mississippiensis)*, and American ginseng *(Panax quinquefolius)*.

Comments on the preliminary notice were received until May 7, 1982; the Service plans to publish proposed findings and a proposed rule on the guidelines later in May 1982, and again seek public comment. By late August 1982, the Service plans to publish final findings and a final rule, effective upon date of publication.

Background

The U.S. District Court for the District of Columbia ruled on December 15, 1981, that the criteria used by the Scientific Authority in advising on whether export of bobcat would not be detrimental to the survival of the species did not incorporate the guidelines called for by the Court of Appeals, which required that findings for bobcat export be based on "reliable estimates of the bobcat population and data showing the total number of bobcats to be killed, in each State involved." The new guidelines are proposed to comply with the Court's criteria.

In order to avoid complicating the process, the Service intends to use the same general guidelines for the lynx, river otter, and American alligator, as for the bobcat. Recognizing that the new guidelines may not be feasible for each species, the Service invites comments on how best to take differences in biology and management considerations of each species into account. The new guidelines necessarily apply only to bobcat export, because of the court ruling.

The newly proposed guidelines describe acceptable methodologies for making population estimates and how the Service will assess reliability. The guidelines make clear that a reliable population estimate is a prerequisite to finding that export will not be detrimental to the survival of the species. They also describe considerations underlying allowable kill levels and make the determination of such levels a requirement for a no detriment finding.

The Alaskan populations of gray wolf and brown bear were listed on Appendix II only to control trade in species whose appearance either as a whole specimen, as parts (skins, etc.), closely resemble that of other endangered or potentially threatened species or populations. Accordingly, the Service will consider the impact of trade in these species or the effectiveness of CITES in controlling trade in other related species of populations when determining conditions under which export may be allowed.

The Service intends to use the same general criteria as were used last year in determining if exports of American ginseng will be detrimental to the survival of the species. A great increase in exports of American ginseng seed in the past year suggests that State management efforts should focus on seeds as well as roots in the interest of conserving this species.

Evidence of legal taking of bobcats, lynx, river otter, Alaskan gray wolf, Alaskan brown bear, and American alligator which is required by the Management Authority, is provided by State tagging systems. The use of self-locking, permanent tags marked to specify State, year of take, species, and a serial number will again be required for the 1982-83 season. States that were previously allowed to use other types of tags must this year use tags of the type specified by the Service.

CITES Plants Reviewed

The Service has announced the preliminary results of its review of North American plants included on Appendices I and II of CITES (F.R. 4/2/82). Public comment on the review is invited, and all statements received by August 31, 1982, will be considered in determining whether the Service should submit proposals to the CITES Secretariat for circulation to the Parties.

At last year's CITES conference at New Delhi, India, the Parties resolved to conduct a 10-year review of the appendices, and a notice initiating Service participation in this process was published on June 30, 1981 (see the July 1981 BULLETIN). The review is being conducted in coordination with the Canadian Wildlife Service (CWS) and the Mexican Department of Agriculture and Hydraulic Resources (MDAHR). Both biological and trade information on CITES species native to North America (and the islands under U.S. jurisdiction) was solicited. Comments were received from Federal and State agencies and from a number of interest groups.

The Service has proposed to recommend transfer from Appendix II to Appendix I, 21 taxa (species, subspecies, and varieties) of native U.S. cacti listed as Endangered or Threatened under the Endangered Species Act of 1973. In addition, the Service proposed the same action for 51 candidate taxa of cacti on the grounds that they appear to be actually or potentially threatened with extinction by commercial trade.

Continued on page 12

Back Issues of Bulletin Available

Back issues of the *Endangered Species Technical Bulletin* are available from the Fish and Wildlife Reference Service in Denver, Colorado. This service is an agency of the Denver Public Library and is funded by the U.S. Fish and Wildlife Service, Division of Federal Aid. Available "hard copy" issues will be sent free of charge upon request for as long as the supply lasts. A set of back issues (July 1976 November/December 1980) is available on microfiche for $2.00. Please state clearly which "hard copy" issues (month and year) you wish to receive and/or send money for microfiche copy to Fish and Wildlife Reference Service, Unit 1, 3840 York Street, Denver, Colorado 80205 (800/525-3426).

SENATE HEARINGS

Continued from page 1

for a total of 200 days compared to the current 360. There are no provisions for extensions of these deadlines. The ESC also would determine whether an irreversible or irretrievable commitment of resources was made by the exemption applicant.

In response to considerable concern voiced at the December hearings, the consultation amendments would exempt actions carried out by a Federal agency under a "no jeopardy" biological opinion from the taking prohibitions of Section 9. Another change in Section 7 would be a requirement that the permit or license applicant would be included in any agreement to an extension of time necessary for preparation of a biological opinion.

Issues arising out of the implementation of CITES and the litigation on export of bobcat skins were addressed in S.2309. The Secretary would determine and advise whether the export or import of any Appendix II species will not be detrimental to the species' survival and whether export should be limited. The language specifically states that the Secretary "shall not be required to use estimations of population size . . . when such estimates are not the best available biological information derived from reliable wildlife management practices." In addition, the International Convention Advisory Commission (ICAC) would be abolished under the bill.

> **"The United States is a leader in international conservation efforts," . . .**

Federal Testimony

G. Ray Arnett, Assistant Secretary for Fish and Wildlife and Parks, represented the Department of the Interior at the April 19 hearing. He began his testimony by restating Interior's position that "the Act should be extended for one year with any amendments limited to modifications which would streamline the Section 7 exemption process and address problems identified by the States." After saying that S.2309 generally fits these criteria, Arnett expressed support for the subcommittee's approach and recommended some clarifying language.

Among Interior's requests were that a number of points relating to the experimental population concept be more closely defined. Other recommendations were that the listing process be further clarified. One area of confusion, in particular, is how the bill's deadlines on consideration of petitioned species would affect the Fish and Wildlife Service's existing priority system. Another question was whether a species can be listed if its Critical Habitat is not determinable at the time of listing but could be determined in the future. With regard to status reviews, Arnett cited their value as a tool in making initial determinations on proposals to list species, and he recommended that they continue to be required as part of the listing process. Arnett also suggested that the scientific standard for "no detriment" findings under implementation of CITES be worded as the "best available biological information utilized in professionally accepted wildlife management practices." Interior believes that this language would be more specific, and would help avoid challenges in the courts. On the subject of funding for cooperative State endangered species programs, the Administration generally opposes this type of grant-in-aid approach. The Fish and Wildlife Service is not requesting Section 6 funds in Fiscal Year 1983. Another area of consideration was the Section 7 exemption process schedule. While endorsing the subcommittee's goal of streamlining the 360-day system, Interior suggested an alternative that would give the Secretary more time to prepare the ESC report while still reducing the entire process to 210 days. It was also recommended that the decision on whether an irreversible or irretrievable commitment of resources had been made should be retained at the threshold level.

William H. Stevenson, Deputy Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration, testified for the Department of Commerce. Although Commerce continues to recommend the bill it proposed (S. 2310), which would extend the Endangered Species Act for 2 years without amendments, Stevenson offered a number of comments on S.2309. Again, the proposed definition of experimental population was cited for clarification. Further, Commerce opposes amendments to the listing process that it believes would give the Secretary of the Interior the authority to rewrite protective regulations promulgated by the Secretary of Commerce. Stevenson also advised that requiring Critical Habitat designations to be concurrent with listings may cause undue delays in the rulemakings, although status reviews were recommended as a mandatory early step in the process. The proposed requirement to conduct reviews of species on the lists of "professional scientific organizations," as well as those of State and foreign governments, was seen as another possible source of delay, and Commerce asked that information from such entities be considered advisory only. Other language in S.2309 was mentioned as needing clarification, particularly the amendment outlining schedules for various steps in the listing process. Commerce also would oppose any deletion of authority to list foreign species.

NOAA objects to the proposed amendment in the consultation process that would require the permission of any license or permit applicant for an extension of a biological opinion deadline. On another matter relating to Section 7 of the Act, NOAA believes that Federal agencies receiving "no jeopardy" opinions should remain subject to the taking prohibitions of Section 9.

Speaking for the Department of State was David A. Colson, Assistant Legal Advisor for Oceans, International Environmental and Scientific Affairs. "The United States is a leader in international conservation efforts," he said, and he called for reauthorization of the Endangered Species Act without amendments that would detract from that leadership role or from U.S. international treaty obligations. Colson stated that S.2309 is generally consistent with these criteria, but he recommended several changes. The State Department strongly supports the proposed addition to Section 4 "which: 1) provides for notification, in so far as practical, in cooperation with the Department of State, of regulations relating to listing of species of foreign nations: a) to those nations in which species are believed to occur or b) to those nations whose citizens harvest the species on the high seas; and 2) would invite comments from such nations." Colson further recommended retention of "the requirement that the Secretary of the Interior, in determining whether a foreign species or one found on the high seas is endangered or threatened, shall cooperate with the Secretary of State in consulting with, or taking into account the efforts, if any, of a foreign country to protect that species."

State suggested alternate language for the scientific standard in "no detriment" findings, substituting "professionally accepted" for the word "reliable." It believes that retaining the independent authority of the Secretary of the Interior to act as the U.S. Scientific Authority for CITES, while making it clear that the Secretary is not confined to any one specific method in arriving at "no detriment" determinations, is consistent with CITES obligations. Colson did suggest clarification of several technical points concerning the proposed amendment to Section 8 of the Act. Further, he again came out strongly against proposals, not included in S.2309, which would require the U.S. to automatically take a reservation to CITES if a domestic species is added to Appendices I or II notwithstanding U.S. opposition. Although the Department of State is not opposed to reservations *per se*, Colson said an automatic legislative requirement "is inappropriate and inflexible and does not further our interests from a practical perspective."

State Wildlife Agency Concerns

The testimony of the International Association of Fish and Wildlife Agencies was presented by William S. Huey, Secretary of the New Mexico Department of Natural Resources. Most of his comments on S.2309 centered on Section 8 of the Act and CITES implementation. With regard to the scientific standard for "no detriment" findings, the association believes that using the word "reliable" to modify "wildlife management practices" would introduce another element of uncertain interpretation, leading to further litigation, and clarification of this point was recommended. The Association also suggested that language be added to make the amendment retroactive to the 1981–82 fur harvest. Another recommendation was that 5-year reviews are adequate and should be substituted for the annual reviews now required. The abolition of ICAC was endorsed, and the Association advocated an amendment on CITES implementation "to direct that the United States take a reservation in situations where the Conference of the Parties undertakes improper listings of native species."

On the subject of listing, the Association suggested clarifying the standard of information necessary at each step of the process in order to maintain the integrity of the list. Any erosion of the current requirement to determine Critical Habitat would be opposed. The experimental population concept was seen as a step in the right direction, but the Association recommends giving the Secre-

> **"A statute is remarkably successful in finding the proper balance . . . if it protects species without stopping projects of economic importance."**

Expediting the Listing Process

Strong interest in further expediting the listing process was voiced at the tary more discretion on management levels for different species in order to accommodate local interests. One possibility Huey presented would be for the Secretary to develop a cooperative agreement with the appropriate State wildlife agency for each experimental population.

"Making use of State resources through Section 6 of the Act is good sense" according to the Association, and Huey endorsed restoration of State grant-in-aid funding and the revised cost-sharing formulas. Private organizations such as the National Wildlife Federation, Safari Club International, and The Nature Conservancy also expressed strong support for State endangered species grants.

hearings on S.2309. Michael Bean of the Environmental Defense Fund, representing more than a dozen other conservation groups, presented a detailed critique of the proposed listing amendments, and called for a revision "to require that determinations of the status of species are based strictly upon objective, biological data and to insure that economic considerations are confined strictly to the Section 7 exemption process." In separate testimony, The Nature Conservancy, the National Wildlife Federation, and a number of other conservation associations also advocated further steps to help speed the listing process by making biological data the deciding factor.

Other interests also spoke for a less cumbersome listing process. The Edison Electric Institute, an association of electric utility companies, said: "We have long advocated that any decision to list or delist a species must be made expeditiously in fairness to all those whose activities will be affected directly by the decision."

CITES Implementation

The proposed amendments to Section 8 of the Act in S.2309 were of great interest to private organizations as well as government agencies. Testimony presented on behalf of the American Fur Resources Institute, Fur Takers of America, and National Trappers Association concurred with the earlier recommendations to remove the word "reliable" from the scientific standard for no detriment determinations, to make such determinations every 5 years, to make the amendments retroactive to the 1981–82 trapping season, and to eliminate ICAC. The Wildlife Management Institute generally shared the trappers' views on ICAC and the no detriment language, but added a recommendation for a legislative requirement to take a reservation when species not protected under the Act are placed on the CITES appendices.

Testimony presenting a different view of the Section 8 controversy, especially as it relates to bobcat exports, was presented at the hearings on behalf of the Humane Society of the United States, Defenders of Wildlife, National Parks and Conservation Association, and Society for Animal Protective Legislation. These groups maintained that the existing language in Section 8 for determinations of "no detriment" is appropriate and necessary to conserve species on the CITES appendices, and they oppose any significant change in the current standard.

Section 7 Consultations and Exemptions

Speaking with Bean for the same group of conservation organizations, Kenneth Berlin of the National Audubon Society testified that the existing Section 7 consultation system has worked exceedingly well, but that a widespread misunderstanding of the process has unfairly exaggerated its impact on development. After describing a number of specific controversial cases, he concluded that "a statute is remarkably successful in finding the proper balance between economic growth and environmental protection if it protects species without stopping projects of economic importance. Section 7 of the Endangered Species Act has succeeded in achieving this fine balance." A streamlining of the exemption process schedule was endorsed, but the substitution of an administrative law judge for the Review Board at the threshold level was recommended rather than giving this responsibility to the Secretary. In another detailed analysis of the consultation amendments, the National Wildlife Federation also supported this alternate approach, which is intended to keep political considerations out of the initial exemption process. Additionally, these groups generally opposed the amendment giving the license or permit applicant "veto power" over extensions in the consultation period.

A number of those testifying at the hearings voiced concern about the amendment in S.2309 that would exempt actions carried under a "no jeopardy" biological opinion from the taking prohibitions of the Act. While endorsing the general goal of this amendment, some felt it is unacceptably broad and would not adequately limit avoidable taking of individuals. A spokesman for the National Wildlife Federation recommended that such exemptions "should be qualified to require that the best economically and technologically practicable techniques be utilized to limit reasonably avoidable take."

Foreign Species

Safari Club International recommended that the experimental population concept in S.2309 "be expanded to apply to foreign populations of endangered and threatened species and the efforts by foreign nations to introduce or reintroduce such species outside their current range." The group proposed a number of other amendments, including ones that would allow importation of trophies legally taken in their country of origin, delete references to sport hunting as being a factor in the overutilization of species, clarify the current language describing commercial activity, and recognize "the valuable conservation effects of sport hunting."

Two multilateral treaties are implemented by the Act, CITES and the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere. The latter treaty is designed to conserve natural areas, wildlife, and plants, and has been ratified by 17 countries. The Environmental Defense Fund called for improved U.S. implementation of this treaty, particularly with regard to plants and migratory birds.

Protection for Plants

A provision to strengthen protection under the Act for listed plants was recommended by the Natural Resources Defense Council. Citing the current lack of taking prohibitions for plants, the inadequate control over plants on Federal lands, and the growing interest of collectors in rare species, the Council requested "amendments that would prohibit collecting of listed plant species for the purpose of possessing them and require Federal land-managing agencies to regulate the collecting of plant species for which there is a large demand that threatens to cause their extinction."

Private Industry Concerns

The Western Regional Council, American Mining Conference, Edison Electric Institute, and National Forest Products Association testified at the hearings on behalf of private industry and the business community. One issue of concern was the experimental population concept. The subcommittee was urged to more closely define certain terms, and to add language further restricting habitat conservation requirements for these experimental populations, while allowing experimental techniques to be used on existing nonexperimental populations. Critical Habitat was another category recommended for further clarification. Concerning Section 7 of the Act, most of those testifying supported the ideas of giving applicants more of a voice in the consultation process and of streamlining the exemption system, but argued that the amendments did not go far enough.

NOAA Studies Possible Humpback Whale Sanctuary

The establishment of a marine sanctuary for the humpback whale *(Megaptera novaeangliae)* in Hawaiian waters is being studied by the National Oceanic and Atmospheric Administration (NOAA) and the State of Hawaii. The proposed action was first recommended by a private researcher in 1977 and was designated as a candidate for a marine sanctuary in December 1979. Since 1979, NOAA has sponsored several series of workshops and public information meetings (the most recent workshop series being April 1982), to study the feasibility and desirability of establishing the sanctuary.

An issue paper on the proposed sanctuary, prepared by NOAA, is available to the public. Please request copies from the Sanctuary Programs Office, Office of Coastal Zone Management (NOAA), 3300 Whitehaven Street, N.W., Washington 20235 (202/634-4236) or from the Hawaii State Department, P.O. Box 2359, Honolulu, Hawaii 96804.

The Colorado River Water Conservation District, in particular, strongly recommended extensive changes in the consultation provisions of the bill, charging that its provisions have been misused by the Fish and Wildlife Service to usurp traditional State water rights. In the case of a conflict between species conservation and project development, the District would give the Federal action agency, rather than the Service, "the authority to balance the interests involved and the ultimate decisional responsibility as to whether the benefits of the proposed conflict outweigh the costs to the species."

At least two of the industry representatives advocated further expediting the listing process in order to minimize uncertainty about potential impacts on their clients' activities, but several ques tioned the advisability of listing subsp cies, populations, or so-called lower li forms.

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As the BULLETIN went to press full committee was scheduled to r the mark-up bill to the Senate by 15. A similar draft bill is under con ation in the U.S. House of Repres tives, where committee action also scheduled by May 15.

Special Foreign Currency Program:

Opportunity for International Wildlife Conservation

by David Ferguson

Part III in a series on the endangered species activities of the Service's International Affairs Office.

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The Prime Minister of India sits enthralled as a film depicting a 1-year ecological saga of India's Bharatpur Sanctuary unfolds in front of her. A visiting Egyptian wildlife biologist listens intently as the Aransas National Wildlife Refuge Manager talks about endangered species management. Wildlife case histories are discussed between U.S. and Pakistani biologists at a conference in Peshawar within a few miles of the Khyber Pass. A common thread that connects all of these events is the Fish and Wildlife Service's Special Foreign Currency Program.

U.S. holdings of foreign currencies or credits accumulate through the sale of surplus agricultural commodities under the Agricultural Trade Development and Assistance Act of 1954 and through the repayment of loans. These monies, which cannot be converted into dollars or other currencies, are used to fund U.S. foreign aid programs in the host countries. A portion of the funds may be declared "excess" by the U.S. Treasury whenever the amount held is sufficient to meet all U.S. government requirements over a period of 2 years. These excess funds may then be applied to optional assistance programs.

Section 8(a) of the Endangered Species Act authorizes the Department of the Interior to utilize these foreign currencies for programs to conserve threatened and endangered species in those countries where such currencies are available. At present, the only countries eligible for the program are Burma, Guinea, India, and Pakistan.

As the primary U.S. agency with responsibility for endangered species, the Fish and Wildlife Service gained Congressional approval to utilize excess currencies starting in Fiscal Year 1976. At that time, Egypt also had excess currency status and the Service received approval for funding in Egypt, Pakistan, and India. Nearly 100 species within the three countries appear on the U.S. List of Endangered and Threatened Wildlife and Plants. Since the funds are "no-year monies" (not tied to a specific fiscal year), their use can be extended over time, which is fortunate since project negotiations can take up to 2 years because flexibility in the use of these funds is helpful. In cases such as that of Egypt, programs can be continued despite the unavailability of new funding.

The Service began by proposing projects devoted to the preservation of both endangered species and their ecosystems. Combined teams from the Fish and Wildlife Service and the National Park Service (which shares Endangered Species Act authorization) traveled to Egypt, India, and Pakistan in early 1977 and 1978 to contact their wildlife agencies. Cooperative programs were initiated, focusing on increasing wildlife/wildland management skills, restoration of habitats, and establishing programs for the recovery of endangered wildlife, including economically valuable species that might someday be safely harvested on a sustained-yield basis.

Activities are generally conducted at the request of the foreign country involved, and always with its full approval and participation. Activities fall into three broad categories: research, including status surveys; education, including both public awareness and professional training; and resource management. Egypt, India, and Pakistan are all different in their flora and fauna, as well as in their management methods, and while the Service's general approach to the programs in each country has been consistent, the makeup and structure of each program is quite different.

The overall program is coordinated in the Service's International Affairs Office, but the activities take place in the individual countries using local personnel. U.S. and international expertise, in the form of technical information and personnel, is drawn upon from time to time as situations merit. Universities, nongovernmental organizations, private foundations, State conservation departments, and Federal agencies other than the Service have willingly provided their expertise. Projects which could have direct benefits in the U.S. are among those sought out in the cooperating countries.

EGYPT

Many Egyptian animals, such as the Nile crocodile, cheetah, leopard, dugong, and slender-horned gazelle, have been reduced to the verge of extinction by excessive hunting, commercial overexploitation, and habitat deterioration. In addition, other species, such as the ibex, wild ass, and Barbary sheep, have come under increasing stress. Management and protection of threatened and endangered species falls under the jurisdiction of the host country's national government; however, in spite of protective legislation, management is often divided among several agencies with the result that full effectiveness is not achieved.

Courtesy of World Wildlife Fund, Inc.

The leopard is one of many species protected by the U.S. Endangered Species Act of 1973 which benefit from the Service's Special Foreign Currency Program.

best copy available

Wildlife management is only a newly developed and understood concept in Egypt, and has been seldom practiced. Service efforts in Egypt initially focused on research projects to collect, collate, and assess the existing information, and to make it readily available. Subsequent activities have sought to locate and evaluate the status of the remaining populations of endangered and threatened species.

In November 1978, the Service helped sponsor an international workshop in Cairo on wildlife management in arid ecosystems. Attended by representatives from 23 countries and 9 international wildlife organizations, the conference provided recommendations to guide the Egyptian government in the conservation field for the next 2 years. Updated checklists for Egyptian wildlife were published, and field surveys discovered species thought to have been extirpated within their Egyptian range. Transfers of biological information on the Sinai have been facilitated by the Service and by private conservation organizations in the U.S. Where necessary, it was translated from Hebrew to English, with all data being provided to the government of Egypt. Implementation plans also were formulated for Israeli-established wildlife reserves in Sinai.

The cooperative program includes habitat management and protective legislation. A ministerial level conservation council was established to ensure a conservation voice in development planning within Egypt, and a proposal was developed to establish an Egyptian Wildlife Service. To help implement these measures, a joint program for multi-level training and environmental education has been established for Egyptian conservation personnel and the development of public awareness. In another significant move, Egypt ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

PAKISTAN

Attempts at establishing a joint program with the government of Pakistan have often suffered from changes in U.S. foreign policy as well as the sometimes politically unstable conditions within Pakistan. Interest by the Pakistan wildlife officials remains high, but little in the way of real activities has occurred.

Pakistan has an unusually large concentration of endangered and threatened species, including at least 25 on the U.S. list. Although a national conservation plan exists for Pakistan, the economic development and social needs of that nation have taken precedence in its national budget. Fortunately, this has not kept the National Council for Wildlife Conservation in Pakistan (that country's primary government agency for wildlife) from continuing research on natural areas and their wildlife. Parks and reserves have been established, but some exist only on paper, awaiting funding for staff and developmental costs.

A fairly comprehensive program for research, management, and training was presented to the government of Pakistan but never formally instituted. Nevertheless, communication continues in the hope that political conditions will eventually stabilize enough to allow joint work. In the meantime, a number of exchanges have taken place in the form of personnel and technical information transfers. The Service provided support for an international survey project on the houbara bustard and is supporting educational efforts to raise awareness of both this bird and the critically endangered Siberian crane. Training continues to be emphasized.

INDIA

India has a rich heritage of wildlife, as well as a long history and tradition of conservation. The floral and faunal diversity of the Indian subcontinent is overwhelming, with estimates of 21,000 species of plants, 500 mammals, 1,300 birds, over 20,000 insects, and a wide variety of other life forms. With an expanding human population of around 700 million, it is a tribute to the foresight of India's leaders that the government gives any support at all for wildlife conservation.

Wildlife legislation and administering agencies are in place, and there is a general public awareness and appreciation for wildlife. Systematic ecological data are not widely available, however, and protected areas are not subject to the most modern techniques for conservation and management. Unfortunately, the knowledge of population dynamics of most species is fragmentary. Many of the Indian states, where the authority for wildlife management is vested, suffer from a lack of technical expertise and trained personnel.

Next to the U.S., India probably has more species (51) on the U.S. list than any other country. The Service's joint program has sought to assist the government of India in implementing its wildlife objectives as well as to identify areas of cooperation that would benefit U.S. conservation programs.

Four major 5-year projects are currently underway to gather research on listed species and their habitats. A national survey of threatened and endangered plants incorporates management for future utilization of medicinally or economically valuable species through sustained yield, and a similar survey is

Photo by David Ferguson

The Sariska Sanctuary in Rajasthan, India, was established to conserve this dry forest habitat.

being conducted for avifauna. India contains wintering grounds for much of Asia's bird life, including a number of listed species, the most spectacular of which may be the Siberian crane. A third major project focuses on two other endangered species: the Asian elephant and the great Indian bustard.

While new protected areas may be established as a result of this extensive activity, one major project is designed to assess the effectiveness of an existing sanctuary for the conservation of an endangered species; in this case, again, the Siberian crane. Hydrobiological studies, coupled with management improvements at Keoladeo National Park, a relatively small wetland with international significance for migratory waterfowl, will enhance wintering habitat. It is the only known wintering grounds for the western population of the Siberian crane, which numbers fewer than 50 (a second population of fewer than 250 birds winters in China). The Keoladeo sanctuary depends upon monsoon rains and runoff funneled into the area by canals. It is a haven for a variety of waterfowl, as well as several species of mammals and reptiles, and provides grazing for thousands of domestic cattle. Management of the park to provide habitat for many wildlife species often comes in conflict with human uses of the land, and this is the major problem to be resolved. The joint U.S./India project seeks to gather basic biological data about the park, assess utilization factors, and provide data to decisionmakers for building a management program. The results are expected to have significant applications in the U.S.

Training of Indian personnel is a major focus of activity. Indian scientists have visited research institutions in the U.S. (as well as other countries) to exchange information, and to learn state-of-the-art techniques and applications. Biologists from the U.S. and England have visited specific sites and project areas to assist in surveys, planning, and exchanges of technical information.

Recently, the Service sponsored a major workshop on Wildlife Management and Research Techniques in India. Carried out in conjunction with the government of India's Ministry of Agriculture, the 3-week workshop provided training in 15 subject areas to over 60 participants (6 came from the neighboring countries of Bhutan, Pakistan, Nepal, Sri Lanka and Indonesia). Other cooperative exchanges of scientists and technical information have included visits of U.S. and English scientists to India to assist in activities involving environmental education, wetland ecology, fauna and flora surveys, wildlife legislation, zoo operation, reptile trade, wildlife diseases, and animal tracking and immobilization.

Significant effort has been put into helping the government of India develop a national educational plan. A pilot workshop for instructing teachers in conservation teaching techniques was successfully carried out in India with the help of the National Park Service (U.S.), and a nongovernmental Indian agency was assisted in developing a series of wildlife conservation educational packets. A 50-minute film documentary on the Keoladeo National Park was supported, and multiple copies (including six in the Hindi language) were provided to the government of India. This film has been favorably received in a number of countries outside India. Wildlife posters in several Indian languages were widely distributed to advance the conservation message, and material on critical marine habitats of the Northern Indian Ocean (Sri Lanka, India, Pakistan) has also been printed.

THE FUTURE

While Service activities in Egypt are winding down, the program in Pakistan is continuing at a steady pace, and action in India is still climbing. Service efforts in the future will attempt to strengthen India's wildlife expertise with the expectation that it can become a regional leader in wildlife conservation. Carryover funds from previous years will allow the Service to continue its support of activities in Egypt, albeit at a low level, for the next year or so.

Based on our mandate under the Endangered Species Act, the Service has developed joint programs in Egypt, Pakistan and India with the full realization that excess foreign currencies will someday not be available. (This has already happened with Egypt). The Service has, by and large, sought out existing programs in other countries rather than creating new ones that would end once U.S. assistance is removed. We have also enlisted the cooperation of other U.S. and international wildlife organizations and institutions, upon which we rely quite heavily. A network of cooperative agencies provides insurance that international conservation work will continue. The wealth and quality of U.S. expertise is well recognized abroad, and is increasingly being sought by wildlife agencies in the "excess foreign currency" countries, reinforcing the importance of the Fish and Wildlife Service in international wildlife conservation.

CONDOR PAIR LOSES AGAIN

The pair of California condors *(Gymnogyps californianus)* that accidentally destroyed their egg in late February laid a second egg in early April, but invading ravens made this second attempt at producing a chick another failure.

Biologists with the Condor Research Center first saw the second egg on April 8, when the female rolled it out of a dark corner in the nest cave into the view of an observation post ½-mile away. The egg was thought to have been laid the previous day, judging from the female's behavior, in a cave about 100 yards from where the pair produced their first egg. Both sites are in a remote mountainous region northeast of Ventura, California.

On April 29, the female condor approached the nest to take its turn incubating the egg, but was chased away by the male. A raven *(Corvis corax)* quickly took advantage of the opportunity to enter the nest cave and began to peck at the egg, apparently puncturing it. The returning female condor at first tried to incubate the damaged egg, but it was soon clear that the egg was crushed. On the following day, a pair of ravens again approached the nest site and, in the ensuing fight, managed to drag away part of the eggshell.

The condor pair's first egg, laid on February 14, was lost over the edge of a cliff 12 days later as the birds fought over which would incubate it (see March 1982 BULLETIN). They are thought to be the same pair that successfully fledged a chick 2 years ago after similar disputes.

Despite the double tragedy, there are new grounds for optimism about the future. "This is the best evidence yet that the critically Endangered California condor will renest after a nesting failure early in the breeding season," said Dr. Noel Snyder, co-leader of the center. Relaying after an early egg loss has long been known for captive Andean condors *(Vultur gryphus)*, but whether it might be true for the California species had not been fully confirmed until now. This proof of natural double clutching is important to the upcoming captive breeding program for the California condor. Further weight has also been given to the belief that a captive population could be established by taking wild eggs for artificial incubation without significantly affecting the wild population. Captive reproduction of Andean condors was multiplied several times the natural rate at the Patuxent Wildlife Research Center in Maryland. Researchers hope to duplicate this success with the California species at the San Diego Wild Animal Park and the Los Angeles Zoo when free-flying immatures are captured under a permit issued recently.

New Publications

The initial section of an *Atlas of the Rare Vascular Plants of Ontario* (edited by George W. Argus and David J. White) has been produced in both English and French by the Botany Division, National Museum of Natural Sciences, Ottawa, Ontario, K1A OM8. Copies may be obtained free-of-charge by writing the museum's Rare and Endangered Plants Project. Those who request this first part will automatically be put on a mailing list to receive subsequent parts as they are published.

Threatened and Endangered Vascular Plants of Oregon: An Illustrated Guide is now available from the Service's Portland Endangered Species Office.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	U.S. & Foreign	Foreign Only	THREATENED U.S. Only	U.S. & Foreign	Foreign Only	SPECIES* TOTAL
Mammals	15	17	224	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	52	2	0	7	1	2	64
TOTAL	194	43	445	45	7	24	758

*Separate populations of species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the leopard, gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 10 animals
8 plants
Number of Critical Habitats Listed: 50
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 53
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

May 6, 1982

CITES PLANTS REVIEWED

Continued from page 5

A review of Mexican cacti, conducted with the Mexican Cactus Society and the MDAHR has prompted the Service to propose the transfer of 47 taxa of native Mexican cacti to Appendix I. Current information suggests that all other taxa of native North American cacti should remain on Appendix II in order to prevent commercial overexploitation through international trade and to enable such trade to be monitored.

A similar review of native orchids of U.S. and Canada, conducted in conjunction with the CWS, has indicated that these taxa should remain on Appendix II. The opinion of both the Service and CWS is that none of the native North American orchids (north of Mexico) is potentially threatened with extinction as a direct result of trade. However, available information is inadequate to support their delisting under the criteria adopted by the CITES Parties at Berne in 1976. Please consult the April 2, 1982, *Federal Register* for a complete listing of proposals.

The Service plans to publish a further notice in September 1982 announcing its decisions on these plant proposals, prior to submitting them to the CITES Secretariat for consideration at the next CITES conference, which is expected to occur around April 1983. Correspondence concerning this notice should be sent to the Office of the Scientific Authority, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (202/653-5948).

Attention Readers

If you are receiving a duplicate copy of the BULLETIN, or if your office continues to receive copies addressed to individuals no longer employed by your agency, please let us know so that we can eliminate these entries from our mailing list. Please refer to the zip code as well as to the addressee when you call or write regarding changes in the mailing list. Thank you.

—The Editor

May 1982 Vol. VII No. 5
ENDANGERED SPECIES
Technical Bulletin Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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June 1982 Vol. VII No. 6

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

Emergency Protection Approved for Two Ash Meadows Fishes

An emergency rule listing as Endangered two fishes that occur only in Ash Meadows, Nevada, was published in the May 10 *Federal Register* and took effect immediately. The Ash Meadows Amargosa pupfish *(Cyprinodon nevadensis mionectes)* and Ash Meadows speckled dace *(Rhinichthys osculus nevadensis)* depend on maintenance of their fragile spring habitat in the Mohave Desert. A large residential and agricultural development in the area poses an imminent threat to the species' survival. Under the temporary listing, protection for the fishes and their habitats will extend for 240 days (until January 5, 1983), giving the Service time to proceed with a permanent rulemaking.

Unique and Diverse Ecosystem

Ash Meadows, an intermontane valley located about 110 kilometers northwest of Las Vegas, is a unique and diverse desert wetland ecosystem made up of several dozen springs and seeps dotting an irregular north-south contour line for approximately 16 km. During the Pleistocene Epoch, the area was covered by an extensive system of interconnecting rivers and lakes. As the climate changed and the surface waters gradually receded, the fishes and other aquatic species of the region were left stranded in the remaining springs and their associated outflows. These springs were isolated in three stages. Devil's Hole, located at the highest elevation, was isolated first, followed by a series of small middle-elevation springs. The larger, lower-elevation springs were isolated last, and it is these springs that provide habitat for the two fishes covered by the emergency rule. All of these wetlands are fed by a local aquifer consisting of "fossil water" that entered the ground-water system more than 10,000 years ago.

The organisms of the region evolved in isolated waters, adapting to their individual habitats and undergoing a high degree of speciation. Despite the damage that has occurred to the fragile area in recent years, Ash Meadows is still considered a relatively lush oasis in what is now one of the most arid regions of the world (average annual rainfall 70 mm). Hundreds of plant and animal species, many of them endemic to the area, are associated with the wetlands and depend on them for survival.

Both the Ash Meadows speckled dace and Ash Meadows Amargosa pupfish are restricted to the area's larger warmwater (24° to 30°C) springs and related outflows. Unfortunately, many of the area's aquatic habitats have been degraded or lost altogether in recent years. Another Ash Meadows species, the Devils Hole pupfish *(Cyprinodon diabolis)*, is endemic to a water-filled limestone cavern and was listed as Endangered in 1967. Three years later, the Warm Springs pupfish *(Cyprinodon nevadensis pectoralis)*, which inhabits the small middle-elevation springs, joined it on the Endangered list. Listing the Ash Meadows Amargosa pupfish and Ash Meadows speckled dace as Endangered therefore extends protection to all three levels of springs.

Protection did not come in time, however, for the Ash Meadows killifish *(Empetrichthys merriami)*, which is now extinct. The Ash Meadows killifish was restricted to the same lower-elevation springs that contain the two emergency-listed fishes, but it was eliminated by predation from exotic species. Other members of the genus *Empetrichthys* have also been extirpated from their Nevada spring habitats. The Pahrump killifish *(Empetrichthys latos latos)*, also an Endangered species, is the only surviving member of the genus. Development of Pahrump Valley, which is next to Ash Meadows, caused the failure of the only spring containing the Pahrump killifish and it now exists only in refugia.

The Ash Meadows region also has an extraordinarily diverse freshwater mollusk fauna, which is currently being studied by Dr. Dwight Taylor of Tiburon, California. Of special interest are two species complexes of snails which are

Continued on page 3

House and Senate Pass Reauthorization Bills

Two bills which further amend and reauthorize the Endangered Species Act of 1973 were passed by the U.S. House of Representatives and the U.S. Senate on June 8 and 9, 1982, respectively. H.R. 6133 and S.2309 will next go to a Congressional Joint Committee for resolution of differences.

Both bills contain amendments to:

- speed up the listing process,
- allow for "experimental populations;"
- provide for more involvement of permit and license applicants in the consultation process;
- streamline the exemption process;
- establish new criteria for the export of Appendix II species under the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and
- reauthorize the Act for 3 years.

A complete analysis of the final 1982 Amendments of the Endangered Species Act will be given in a future issue of the BULLETIN. For background information on the amendments listed above, consult the January, March, and May 1982 issues of the BULLETIN.

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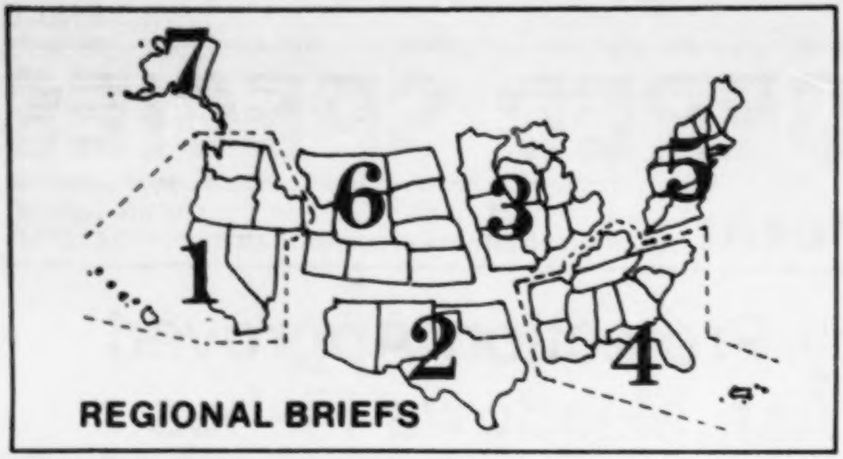

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of May:

Region 1—The California condor *(Gymnogyps californianus)* is in the news again. After witnessing the loss of two eggs this season from one breeding pair, biologists with the Condor Research Center have confirmed the presence of a chick produced by a second pair, and are optimistic about nesting behavior exhibited by a third pair some 45 miles away that indicates the possible existence of another chick. The nest of the third pair is in a cave and cannot be seen well from the observation post, but the biologists hope to be able to confirm the possible chick in the future.

The Service has published a notice of intent to prepare an Environmental Assessment on the San Bruno Mountain Habitat Conservation Plan and Endangered Species Section 10(a) Permit, San Mateo County, California (F.R. 4/6/82). The proposed Federal permit would be for taking of Endangered mission blue butterflies *(Plebejus incaridoes missionensis)* incidental to implementation of a conservation plan, which includes construction of residential housing on San Bruno Mountain. The habitat conservation plan is incorporating various commitments from private landowners, local governments, and the Federal Government. It is designed to conserve and enhance as much of the remaining habitat as possible for the mission blue and other species of concern in the area, while allowing limited development that would not have significant adverse effects on the species. Key elements of the plan will set aside habitat favored by the butterfly, foster the growth of the butterfly's host plants, reverse the invasion of competing brush species, alter the initial construction plans, and establish research/monitoring programs.

On April 26th, the Fish and Wildlife Service and University of California-Berkeley botanists and pedologists (soil scientists) inspected the China Hat formation north of Merced in Merced County. This formation contains some of the oldest soils in California, nearly 3 million years in age. Moreover, China Hat has a mutlitude of mima mounds and vernal pools; the latter are seasonally wet depressions that harbor a unique flora. Approximately 15 pools contained succulent owl's clover *(Orthorcarpus campestris* var. *succulentus)*, a Federal candidate for listing and a State-listed endangered plant species. This discovery significantly increased the known range of the plant. U.C.-Berkeley researchers are attempting to preserve a portion of this unique area.

Region 2—For the second time in 2 years, the captive female Mexican wolf *(Canis lupus baileyi)* at the Wild Canid Survival and Research Center at St. Louis, Missouri, has produced a litter of pups. This year's litter includes 2 females, bringing the total number of Mexican wolves in captivity to 12, half of which are females.

The red wolf *(Canis rufus)* captive breeding program has produced three more litters of pups this year, bringing the total number in captivity to 56.

Region 4—The Florida Game and Fresh Water Fish Commission, in cosponsorship with the U.S. Forest Service, Gulf Coast Community College, and the U.S. Fish and Wildlife Service, will host a red-cockaded woodpecker *(Picoides [=Denrocopus] borealis)* symposium, January 27–29, 1983, in Panama City, Florida. Those

Continued on page 5

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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GPO—361-580

Rulemaking Actions—May 1982

Blue Pike and Longjaw Cisco Proposed for Deregulation

The Service has proposed to remove the blue pike *(Stizostedion vitreum glaucum)* and the longjaw cisco *(Coregonus alpenae)* from the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 5/25/82). Available data indicate that both species are extinct.

Historically, the blue pike was found in Lakes Erie and Ontario, and the Niagra River. They were abundant in the commercial fishery of the late 1800's but by 1915 landings began to fluctuate extensively. Populations declined in the late 1950's and never recovered, the last confirmed specimens being taken in the late 1960's.

In a 1977 survey, the Blue Pike Recovery Team contacted all State fish and game agencies in an effort to determine the species' status. After all parties responded negatively regarding the pike's presence in their State, the team concluded that the fish was extinct and recommended its deregulation. Overintensive fishery, which disrupted self-stabilizing mechanisms within the blue pike's population, is probably the cause of the extreme fluctuations and ultimate crash of the fishery. Deterioration of water quality during the late 1950's and early 1960's contributed to the decline of the species.

The longjaw cisco was indigenous to the Great Lakes basin and occurred only in Lakes Michigan, Huron, and Erie. It was one of several species of deepwater ciscos utilized by the smoked fish trade and was a very important species of the fishery of the Great Lakes. This fish has not been seen in Lakes Erie and Huron since the late 1950's. The most recent collection of this species was in 1967 in Lake Michigan. The decline of the longjaw cisco and the cisco fishery in general is usually attributed to fishery and environmental problems.

Comments and materials concerning this proposal should be sent by July 26, 1982, to the Regional Director, U.S. Fish and Wildlife Service, Federal Building, Fort Snelling, Twin Cities, Minnesota 55111.

ASH MEADOWS

Continued from page 1

found within a 5-mile radius in Ash Meadows, and contribute to the area containing the highest concentration of endemic animal species in the continental United States. Most of these mollusks have not been scientifically described and named. The same factors that jeopardized the desert fishes, primarily groundwater pumping and the introduction of exotic species, led the Service in 1976 to propose the Ash Meadows turban snail (*Fluminicola erythropoma)* as Threatened. In 1979, the proposal was withdrawn because of the listing schedule deadlines specified in the 1978 Amendments to the Endangered Species Act. Current evidence indicates that *F. erythropoma*, as proposed, comprised more than one species. The Service is now evaluating the status of at least 12 Ash Meadows snail species, and expects to include them in a general Notice of Review on animals which will be published in the *Federal Register* later this year.

Another Ash Meadows endemic that may appear on the same Notice of Review is the Point of Rocks Spring naucorid *(Ambrysus amargosus)*; unfortunately, this insect may already be extinct because of the diversion of water from its single spring habitat. The Ash Meadows riffle beetle *(Stenelmis calidae calidae)* also is restricted to only one aquatic habitat, Devil's Hole, but it benefits from the habitat protection given to the Devils Hole pupfish.

Seven plant species endemic to Ash Meadows are considered candidates for future listing, and were included in the general Notice of Review on plants published in the December 15, 1980, *Federal Register*. These species are the spring-loving centaury *(Centaurium namophilum* var. *namophilum)*, Amargosa niterwort *(Nitrophila mohavensis)*, Ash Meadows gum plant *(Grindelia fraxinopratensis)*, Ash Meadows stickleaf *(Mentzelia leucophylla)*, Ash Meadows milk-vetch *(Astragalus phoenix)*, King ivesia *(Ivesia eremica)*, and Corrugated sunray *(Enceliopsis nudicaulis* var. *corrugatum)*. Two other candidate plants included in the Notice of Review occur in Ash Meadows and elsewhere; these species are the Tecopa bird's-beak *(Cordylanthus tecopensis)* and the alkali mariposa lily *(Calochortus striatus)*. The *Astragalus* and *Mentzelia* are currently listed by the State of Nevada as threatened with extinction.

One small endemic mammal once found in the area, the Ash Meadows vole *(Microtus montanus nevadensis)*, has not been reported in over 20 years and is probably extinct because of habitat disturbance. In 1980, the Service published a separate Notice of Review on a related mammal, the Amargosa vole *(Microtus californicus scirpensis)*. This candidate for listing is thought to inhabit the general region just southwest of Ash Meadows.

Threats to the Habitat

Although early attempts at agriculture in Ash Meadows failed because of the area's salty, clay soils, there was renewed interest in the late 1960's and early 1970's. Large tracts of land were plowed, and groundwater pumps and diversion ditches were installed to support an agricultural operation. This activity

A view of Point of Rocks Springs, Ash Meadows, before (below) and after (right) development. The pool and its outflow once were habitat for both of the recently listed fishes.

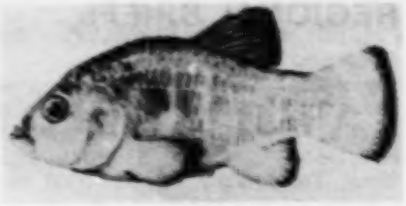
Photos by D. W. Sada

destroyed many plant and animal populations, along with their wetland habitat, by altering the land surface and lowering the water table. In 1976, a series of negotiations and court cases culminated in a landmark U.S. Supreme Court decision limiting the amount of groundwater pumping in the Devil's Hole area of Ash Meadows to protect vital water levels in the only known habitat of the Devils Hole pupfish. The Supreme Court saved the habitat of the Devils Hole pupfish by recognizing the prior water right of the 40-acre disjunct portion of Death Valley National Monument surrounding Devil's Hole. The court decision was not based on endangered species protection, but instead on water rights. Although the Ash Meadows wetlands are interconnected by the same aquifer that feeds Devil's Hole, the effects of groundwater pumping on the water table vary according to location; therefore, the 1976 Supreme Court decision did not necessarily preclude pumping in other areas of Ash Meadows.

In 1977, the agricultural interest sold approximately 14,000 acres of land in Ash Meadows to a real estate developer, Preferred Equities Corporation (PEC). The imminent threat to the existence of the Ash Meadows species is the proposed development of the area by PEC for residential, recreational, industrial, and agricultural purposes, all of which would require great quantities of water. Although the Bureau of Land Management is the principal landowner in the 40,000-acre Ash Meadows area, PEC owns the majority of surface water rights. A recent report prepared for the Attorney General of Nevada (*The Status and Future of Ash Meadows, Nye County, Nevada;* Sid F. Cook and Cynthia D. Williams, 1982) estimates that 368.4 percent of the total discharge water available in Ash Meadows would be necessary if the development was completed.

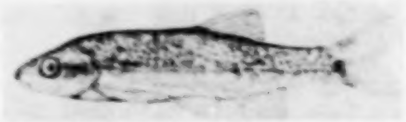
Construction activities in Ash Meadows would clear large tracts of essential habitat, extirpate many plant and animal populations, and alter surface drainage patterns. Utilization of surface water from springs, along with pumping the aquifer, would eliminate most surface flows, lower the water table, and interfere with the very slow groundwater recharge, all of which would destroy downgradient wetlands. The initial development phase has already begun, and some habitat has been modified. PEC has constructed roads in the area, several of whch connect different springs, and it has substantially altered surface flows and spring hole morphometry at these sites. Several springs have been excavated by heavy equipment. (PEC has applied for permission from the State of Nevada to divert water from many of the other Ash Meadows springs.) In addition, approximately 1,000 acres of cotton have been planted. These events complement the destruction of habitat which has occurred since the advent of agricultural activities at Ash Meadows.

Habitat loss is not the only factor jeopardizing the Ash Meadows endemic species. As is the case with many other "island" ecosystems, the introduction of exotic organisms has had a serious impact. Competition from the mosquito fish *(Gambusia affinus)* and sailfin molly *(Poecilia latipinna)*, as well as predation by bullfrogs *(Rana catesbiana)* and crayfish *(Procambarus clarki)*, were at least partially responsible for the extinction of the Ash Meadows killifish, and continue to threaten the Warm Springs pupfish, Ash Meadows Amargosa pupfish, and Ash Meadows speckled dace. An introduced aquatic snail *(Melanoides)* has reduced populations of native snails in several springs. The introduced species may also be having an impact on other aquatic endemics in the area.



Subspecies of the Amargosa pupfish (above) and speckled dace (below), occurring only in a few Ash Meadows springs, were listed in the emergency rule.

Illustrations by Carol Mortensen



Effects of the Rule

In its emergency rule, the Service determined that "development of the Ash Meadows residential community will cause the extirpation of the Ash Meadows biological community." To help forestall further damage, the listing of the Ash Meadows Amargosa pupfish and the Ash Meadows speckled dace became effective immediately upon the date of the *Federal Register* publication, May 10, 1982. This action gives protection to the habitat most immediately jeopardized by development, and is expected to help conserve other endemic species in the area.

A formal designation of Critical Habitat for the fishes was not included in the emergency rule because vandalism of the restricted and very vulnerable habitats could occur if detailed maps of the springs were published. The emergency rule carries the full protection of the Endangered Species Act, including the prohibition of "taking" and of adverse habitat modification by Federal agencies. During the 240-day course of the temporary listing, the Service will prepare a proposal to extend permanent protective status to the two fishes, and Critical Habitat might be included at that time if it is shown to be beneficial to the species' survival. The condition of the other Ash Meadows endemic species also will be evaluated to determine the need for including them in the proposal for a final rule.

NOTE

Since June 1981, free distribution of the BULLETIN has been limited to Federal employees only. This note is to assure you that the Service intends to continue free distribution to all who are now receiving the BULLETIN, and to any Federal employee who might wish to receive it in the future.

REGIONAL BRIEFS

Continued from page 2

interested in attending or participating should contact Don Wood, Division of Wildlife, Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, Florida 32301 (telephone 904/488-3831).

Bald eagles *(Haliaeetus leucocephalus)* have nested for the first time in over 30 years in Arkansas. The nest is located on the White River National Wildlife Refuge; the pair of eagles using this nest layed two eggs and both have hatched, although only one hatchling has survived as of May 26.

One of the Florida panthers *(Felis concolor coryi)*, radio collared in February 1982 has been found dead. Daily aerial monitoring since the date of capture indicated that the animal had been stationary since early April. A ground search was made, and on April 16 the remains of the male panther were found with the radio collar. The cause of death has not been determined. The skeletal remains have been deposited at the Florida State Museum, University of Florida, at Gainesville. This is the first radio collared panther that has died. It was estimated to have been about 7 years old and was known to be alive as recently as late March.

Region 5—On May 19, the Director approved the Chesapeake Bay Bald Eagle Recovery Plan, commending the recovery team, headed by Gary Taylor of the Maryland Department of Natural Resources, and the regional endangered species staff on the accomplishment. The plan is the first approved of five regional recovery plans being developed on bald eagles in the lower 48 States.

New York State's endangered species unit plans to return to Alaska in July to obtain 21 more bald eagle chicks. All 21 collected last year and taken to the hacking site at Oak Orchard, New York, fledged successfully.

Region 6—In October 1981, during fall migration, a group of four whooping cranes *(Grus americana)* were observed at Quivira National Wildlife Refuge in central Kansas. One week later, after the group of four had migrated further south, the refuge was visited by a group of six whoopers. These 10 birds represent 13 percent of the population of 79 birds that started the migration south from the breeding grounds in Wood Buffalo National Park, Northwest Territories, Canada, to the wintering grounds along the coast of southern Texas. Because of past use of whooping cranes, the refuge was designated as Critical Habitat on May 15, 1978.

The March 1982 BULLETIN reported on the recovery plan that was approved for the grizzly bear *(Ursus arctos horribilis)*. The plan has been printed, and copies are available from the Denver Regional Office or the Billings Area Office.

The May 1979 BULLETIN related that the Bureau of Reclamation (BR) and the Service had agreed to a study of the endangered Colorado squawfish *(Ptychocheilus lucius)* and humpback chub *(Gila cypha)*. Later, the August 1981 issue reported that additional studies were being conducted and that the bonytail chub *(Gila elegans)* was also being studied. The Colorado River Fishery Project (CRFP) completed field studies in the fall of 1981, and is completing a final report. Although significant information on the life history requirements of the species was collected, certain conclusions and recommendations made in the report are preliminary and warrant further refinement or verification. In order to obtain the additional information that is needed, BR and the Service have entered into a Memorandum of Understanding to carry out a Colorado River Fishery Monitoring Program (CRFMP) until March 31, 1985. The three objectives of the CRFMP are (1) to expand information on the distribution and movement of adult squawfish to and from spawning site locations with the use of radiotagging, (2) to verify flow requirements of adult squawfish in relation to spawning success and survival of larval squawfish, and (3) to determine effects of flow fluctuation at Flaming Gorge Reservoir on the survival and rearing of young-of-the-year and juvenile squawfish. Dr. Bill Miller, the Service biologist at Salt Lake City, Utah, who was project leader for CRFP, will also head the CRFMP.

Intensive night spotlight surveys conducted in the Meeteetse, Wyoming, area last November by the Service resulted in at least nine different black-footed ferrets *(Mustela nigripes)* being sighted. Extensive snow tracking efforts this past winter by Idaho State University/Biota Research and Consulting, Inc., biologists resulted in evidence that indicated there may be 11 or more additional individuals in the area. Work will continue on the ferrets this summer, and probably next winter, to determine the number of individuals and their distribution.

Recovery Plans Approved for Clay Phacelia and Eastern Indigo Snake

The Director of the Service has approved two additional plans to aid in species recovery: the Clay Phacelia *(Phacelia argillacea)* Recovery Plan, signed April 12, 1982, and the Eastern Indigo Snake Recovery Plan, signed April 22, 1982.

Clay Phacelia

The clay phacelia *(Phacelia argillacea)* is a winter annual whose known current distribution consists of one small population of about 200 plants along a railroad right-of-way in Utah County, Utah. It was first collected in 1883, but there was little knowledge of the species until its rediscovery by N.D. Atwood in 1971. The plant was described and named as a new species by Atwood in 1973, and was listed by the Service as Endangered in 1978.

Destruction of portions of the *P. argillacea* population and modification of habitat within its very restricted distribution have jeopardized the species. Both the railroad and its maintenance road bisect the only known *P. argillacea* population, and most of the plants are situated on privately owned land which could be further modified in the future. Sheep have moved through the population area, trampling some of the plants, and rock squirrels have chewed branches on some of the remaining individuals.

The objective of the recovery plan is to establish a self-sustaining population of 2,000–3,000 individuals on 120 acres of protected habitat, and possibly to establish at least one additional population. An initial recovery phase will be to give the existing population more direct protection; this may be accomplished through better control of animal damage and through acquisition of a portion of the habitat by a private conservation organization, The Nature Conservancy. Liaison with the railroad company and the Utah Department of Transportation, both of which manage parts of the site, will encourage each to assist in conserving the habitat.

Since *P. argillacea* historically was known from two locations, an intensive survey of similar habitat in the region is recommended to locate any additional existing populations. The plants and their habitat are to be monitored periodically to insure adequate conservation. Another part of the plan outlines studies needed on the species' biology and habitat requirements. Careful harvest of a small portion of the annual seed production could enable experimentation on germination, substrate needs, and survival techniques. Long-term storage of seeds at the USDA-National Seed Storage Laobratory in Fort Collins, Colorado, is mentioned in the plan as a possibility to preserve the plant's genepool.

Continued on page 6

RECOVERY PLANS

Continued from page 5

Eastern Indigo Snake

The eastern indigo snake *(Drymarchon corais couperi)* historically occurred throughout the southeastern United States coastal plain, from South Carolina to Florida and west to southern Louisiana. After habitat loss and overcollection for the pet trade, however, only southeastern Georgia and peninsular Florida are thought to support sizeable populations. Both States give the snake full protection, and it was listed by the Service in 1978 as a Threatened species.

One of the major recommendations of the recovery plan is to conduct additional field studies to locate eastern indigo populations and delineate their habitat. In Georgia, the snake is strongly associated with xeric sandridge habitat, and depends on gopher tortoise *(Gopherus polyphemus)* burrows for refuge and overwintering sites. Once suitable habitat is located, the plan calls for acquisition and/or management of areas necessary to maintain viable populations. Additional legal protection on the State level for both the eastern indigo snake and the gopher tortoise is advocated.

Captive propagation and monitored reintroduction efforts are another important part of the plan. The Alabama Cooperative Wildlife Research Unit is already in the fourth year of an eastern indigo propagation/restocking program. (For details regarding the unit's activities on the eastern indigo, see the November 1981 BULLETIN.)

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Copies of recovery plans are available from the Fish and Wildlife Reference Service, Unit i, 3840 York Street, Denver, Colorado 80205.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	ENDANGERED U.S. & Foreign	ENDANGERED Foreign Only	THREATENED U.S. Only	THREATENED U.S. & Foreign	THREATENED Foreign Only	SPECIES* TOTAL
Mammals	15	17	224	3	0	21	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	52	2	0	7	1	2	64
TOTAL	194	43	445	45	7	24	758

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 10 animals
8 plants

Number of Critical Habitats listed: 50
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 54
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

May 31, 1982

New Publications

"Rare Plants of New York State," by Richard S. Mitchell and Charles T. Sheviak, 1981, is available for $8.00. This New York State Museum publication (Bull. 445) has 96 pages and 55 illustrations. To order, make your check payable to New York State Library and mail to Gift and Exchange Department, New York State Library, Albany, New York 12230.

A cumulative index of the *Endangered Species Technical Bulletin* (July 1976–December 1981) is now available. Copies may be requested by writing the Office of Endangered Species, U.S. Fish and Wildlife Service, 18th and C Streets, N.W., Washington, D.C. 20240.

"International Trade in Plants—Focus on U.S. Exports and Imports," by Thomas Gibson, Niall McCarten, Faith Thompson Campbell, and Linda McMahan is now available from Traffic (U.S.A.) for $9.50. Order a copy by sending a check (payable to World Wildlife Fund-U.S.) to Traffic (U.S.A.), 1601 Connecticut Avenue, N.W., Washington, D.C. 20009.

"Amphibians and Reptiles in Pennsylvania Checklist, Bibliography, and Atlas of Distribution," by C.J. McCoy, March 1982, is available for $4.00. This Special Publication of Carnegie Museum of Natural History (No. 6) has 91 pages and 74 maps. Order copies from the Carnegie Museum of Natural History, 4400 Forbes Avenue, Pittsburgh, Pennsylvania 15213.

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Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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Vol. VII No. 7

ENDANGERED SPECIES Technical Bulletin

Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

Bald Eagle Bicentennial Year Highlighted by Chesapeake Plan

by Roger Hogan, Region 5

The first of five regional recovery plans designed to help reestablish bald eagle *(Haliaeetus leucocephalus)* populations in the United States was signed on May 19, 1982, by the Service's Director Robert A. Jantzen. This plan, the Chesapeake Bay Bald Eagle Recovery Plan, was prepared by the Chesapeake Bay Bald Eagle Recovery Team which is headed by Gary J. Taylor, Nongame and Endangered Species Program Manager for the Maryland Wildlife Administration.

In recognition of Taylor's leadership which was key to the plan's completion, a Letter of Commendation from Director Jantzen was recently presented to him by Regional Director Howard Larsen. During the presentation, Larsen expressed his confidence in the success of recovery efforts for the bald eagle and noted the appropriateness of the Recovery Plan's completion during 1982, recently designated as "Bicentennial Year of the American Bald Eagle" by President Ronald Reagan. The letter also acknowledged Taylor's involvement in the organization and direction of projects for the benefit of Federal and State endangered species in the Chesapeake Bay Area.

Status of Chesapeake Bay Eagles

The Chesapeake Bay Region encompasses the entire state of Delaware and the coastal plain of Maryland and Virginia. In 1936, approximately 25 percent of this area was surveyed resulting in an estimate for that portion of the region of 150 to 200 nesting pairs of eagles. Estimates from a 1962 aerial survey indicated that only 150 pairs of bald eagles remained in the entire Chesapeake region and that the level of production of young by these birds was only one-eighth of that found in 1936. By 1970, the nesting population of bald eagles appeared to have been reduced to 80–90 pairs. The decline in the eagle population has been attributed largely to high levels of pesticides DDE, Dieldrin and also possibly PCB's. Recent data (1982) show an improvement in the number of active nests with 106 counted, and also an increase in productivity. The gradual decline in levels of pesticides in the eagles is beginning to be manifested.

Other problems still exist in the form of other environmental contaminants, accelerating rates of habitat destruction, disturbance, and shooting. The Chesapeake Bay Bald Eagle Recovery Plan sets forth various tasks designated to minimize these impacts on eagles. These tasks range from population and habitat surveys and obtaining cooperative agreements with landowners, to developing public information programs.

Working closely with the Recovery Team and the Service in the accomplishment of the recovery tasks are the States of Maryland, Virginia, and Delaware and the Audubon Naturalist Society, National Wildlife Federation, and The Nature Conservancy. The ultimate goal of the plan is the delisting of the eagle; a more immediate goal is to reclassify its status from Endangered to Threatened. The Recovery Team feels that, based on available habitat in the Chesapeake Bay Region, this reclassification can be accomplished when the eagle has reached a population size of 175–250 nesting pairs with a minimal productivity of 1.1 eaglets per active nest.

Further information on this plan can be obtained by contacting the Regional Director, U.S. Fish and Wildlife Service, Suite 700, One Gateway Center, Newton Corner, Massachusetts 02158 (617/965-5100). Copies of the plan are available from the Fish and Wildlife Reference Service, Unit i, 3840 York Street, Denver, Colorado 80250.

Mid-July Set for Joint Committee Meet

A Congressional Joint Committee, formed of members of both the U.S. House of Representatives and the U.S. Senate and their staffs, is scheduled to convene in mid-July. The joint committee will reconcile differences which exist between H.R. 6133 and S.2309, bills passed by the respective lawmaking bodies in early June 1982 for reauthorizing and further amending the Endangered Species Act. A complete analysis of the final 1982 Amendments of the Act will be given in a future issue of the BULLETIN.

Recent data show an increased number of bald eagle nests as well as increased nest productivity in the Chesapeake Bay area.

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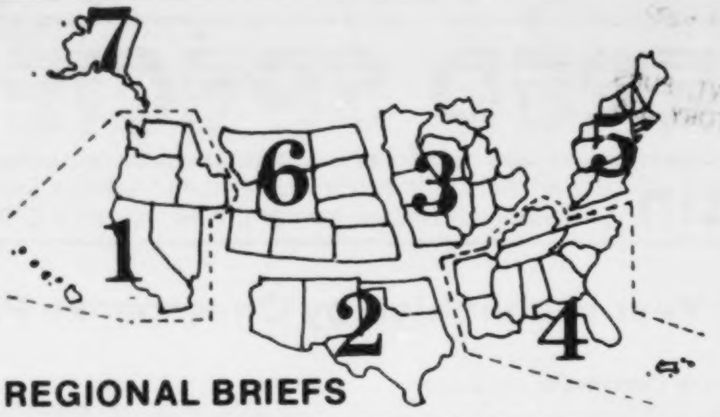

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of June:

Region 1—In cooperation with the Oregon Department of Fish and Wildlife and the U.S. Forest Service, aerial surveys were conducted for active peregrine falcon *(Falco peregrinus)* eyries in Oregon. Most of the likely nesting sites were surveyed this year; the remaining areas will be done early next spring. Preliminary results indicate the possibility of two new active eyries. Only one active site is currently known.

The only currently known location of a candidate plant, palmate bird's beak *(Cordylanthus palmatus)*, has been plowed by the landowner, indicating that conservation efforts to protect the site have failed. *C. palmatus* was thought to be extinct until recently rediscovered. The full impact that the plowing will have on this species is not yet known.

Over 13,000 cui-ui *(Chastmistes cujus)* have used the Pyramid Lake fishway at the Marble Bluff Dam on the Truckee River to gain access to upstream spawning areas. This is the largest run of this Endangered fish ever to enter the facility. The previous high was 7,100 in 1980. Fewer than a hundred entered the system last year. The success and magnitude of this year's run is due to high river inflows in Pyramid Lake and a new modified fish ladder in the Pyramid Lake fishway.

Region 2—The Endangered Gila topminnow *(Poeciliopsis occidentalis)* was stocked in over 70 springs and tanks on U.S. Forest Service lands during June. This action is part of a Memorandum of Understanding (MOU) with the Arizona Game and Fish Department, the Forest Service, and the Fish and Wildlife Service that potentially will lead to downlisting of the fish within 3 years and delisting within 5 years. It is believed to be the most extensive single reintroduction effort ever undertaken for a listed species, and estimates are that 250 people from the MOU cooperators participated in the recovery action.

The Arizona breeding population of the bald eagle *(Haliaeetus leucocephalus)* has fledged a near record 13 young from 7 nests. Three of these chicks were fostered at two nests, and all fledged successfully. To the east, bald eagles in Texas fledged 16 young from 14 nests.

About 2,000 Kemp's Ridley sea turtle *(Lepidochelys kempii)* eggs have been brought from the turtle's only known nesting beach (at Tamaulipas, Mexico) to the Padre Island National Seashore in Texas for incubation and imprinting. Following the hatchlings' imprinting on Padre Island beaches, they will be taken to the National Marine Fisheries Service laboratory at Galveston for "head-starting" prior to their eventual release.

Region 5—The Massachusetts bald eagle hacking program got off to a great start thanks to the State of Michigan, which donated two eagle chicks; the Massachusetts Audubon Society, which provided $10,000; and the Massachusetts Division of Fisheries and Wildlife, which planned, coordinated, and is carrying out the project at Quabbin Reservoir. Region 3 of the Service was also thanked for its support of the cooperative venture.

The Forest Service has submitted a technical review draft of the Robbins Cinquefoil *(Potentilla robbinsiana)* Recovery Plan to the Regional Office. Another cooperative effort, the plan was prepared by the staff of the White Mountains National Forest (New Hamp-

Continued on Page 4

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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Rulemaking Actions – June 1982

Hawksbill Nesting Beaches Determined Critical Habitat

Important nesting beaches for the hawksbill sea turtle *(Eretmochelys imbricata)* in the Commonwealth of Puerto Rico have been determined Critical Habitat (F.R. 6/24/82). This action identifies specific areas subject to Federal agency consultation under Section 7 of the Endangered Species Act. Hawksbill populations throughout the tropics are jeopardized primarily by trade in turtle shells and products; taking of turtle eggs for human consumption and by predators; and disruption or alteration of nesting beaches. The maintenance and protection of undisturbed nesting beaches is necessary for the survival of hawksbills and other sea turtles, and this strategy was endorsed by the 1979 World Conference on Sea Turtle Conservation.

The hawksbill sea turtle was listed as Endangered in 1970. Since 1977, responsibility for the conservation of all listed sea turtles has been shared by the Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS). The FWS has jurisdiction while they are on land; therefore, this determination applies only to nesting beach habitat. Included are all 7.2 kilometers of beaches on Isla Mona, along with sections of beachfront on Culebra Island, Isla Culebrita, and Cayo Norte, which are reported to be among the best in the world for the hawksbill. Some of these areas may also be used by other listed sea turtles, including the loggerhead *(Caretta caretta)*, green *(Chelonia mydas)*, and leatherback *(Dermochelys coriacea)*.

Regulatory History

Critical Habitat protection for hawksbill nesting beaches in the Commonwealth of Puerto Rico was first proposed on May 24, 1978, but was withdrawn March 6, 1979, because of changes in the requirements for determining Critical Habitat made by the 1978 Amendments to the Endangered Species Act. After complying with the new procedures, the rule was reproposed on October 22, 1980, and three public meetings were held in the area during the following December. Of the 25 comments received in response to the reproposal, 24 were in favor and one took no position. The area finally determined as Critical Habitat is essentially the same as that specified in the proposals.

Effects of the Rule

A Critical Habitat determination complements the protection already given a species at the time of its listing. It does not establish a refuge or wilderness area, but only assists Federal agencies in complying with their responsibilities under Section 7 of the Endangered Species Act. Specifically, Federal agencies are required to insure that any actions they fund, authorize, or carry out will not likely jeopardize the continued existence of a listed species, or result in the destruction or adverse modification of its Critical Habitat. Maps and descriptions of the areas covered by the rule can be found in the June 24, 1982, *Federal Register*.

Photo by C. Kenneth Dodd

Pictured above is Isla Mona, Puerto Rico, part of the recently determined hawksbill sea turtle Critical Habitat.

Smoky Madtom Status Review

The smoky madtom *(Noturus baileyi)*, which was believed extinct until September 1980 when it was discovered by a Service survey crew in Citico Creek, Monroe County, Tennessee, is the subject of a status review (F.R. 6/22/82). This study will help to determine if the species and its habitat should be provided protection under the Endangered Species Act of 1973, as amended.

Citico Creek, a tributary of the Little Tennessee River, is presently the only known habitat of the smoky madtom. The fish was originally discovered by a Service crew in 1957 in Abrams Creek, another tributary of the Little Tennessee River in nearby Blount County. The discovery of the species and collection of the type specimens occurred during a "stream renovation" poisoning operation to remove unwanted fish species from the Chilhowee Reservoir watershed prior to closure of the Chilhowee Dam. (This was a routine procedure at that time designed to enhance the chances of establishing a trout fishery in a new reservoir.) Soon thereafter the Abrams Creek locality where the madtom was first discovered was flooded by the closure of Chilhowee Dam. Despite considerable efforts, no further specimens have been collected from Abrams Creek.

The biology of the madtom is poorly known. However, the fish are probably nocturnal and likely to feed on aquatic insects. Due to its apparent limited distribution, the fish is very vulnerable to a single catastrophic event which could completely eliminate the species. The fish's habitat could also be adversely modified by logging, road construction, or other disturbance within the Citico Creek watershed if these activities are not carefully designed and carried out with the welfare of the species in mind.

In addition to biological data, the Service is seeking information on environmental and economic impacts and effects on small entities that would result from listing the species as Endangered or Threatened under the Act. The Service also seeks information on possible alternatives to the listing.

Comments and data should be submitted to the Area Manager, U.S. Fish and Wildlife Service, 50 South French Broad Avenue, Plateau Building, Room A-5, Asheville, North Carolina 28801. For further information on the notice of review, write Mr. Richard Biggins or Mr. Robert Currie at the same address, or call (Commercial 704/258-2850, Extension 321; FTS 8/672-0321).

Rulemaking Actions Continued

Return of Wolf Management to Minnesota Proposed

The return of management authority for the gray wolf *(Canis lupus)* in Minnesota to the State is included in new regulations recently proposed by the Service (F.R. 7/14/82). Among the provisions of the Minnesota management plan are increased flexibility in predator control and a limited trapping program.

The gray wolf once ranged through most of North America, but habitat loss and conflict with agricultural uses caused the extirpation of the species in most of the lower 48 States; the few remaining wolves in this region were later listed as Endangered. Today, the wolves in northern Minnesota compose the last large surviving population south of Canada. It was reclassified to "Threatened" in 1978. Current estimates are that it numbers 1,200–1,400 animals. A recovery plan for the eastern timber wolf, the subspecies of which the Minnesota wolves are a part, also was approved in 1978.

Although the reclassification to Threatened did allow for greater management flexibility with regard to predator control, problems continued in agricultural areas. Currently, the Service is restricted to trapping depredating wolves within one-quarter mile from where the incident occurred; the proposed regulations would extend the limit to one-half mile. Also, additional limited trapping would be allowed in certain areas, a measure which was recommended in 1978 by the recovery team. Restrictions would be imposed to maintain specified wolf population densities.

Under the proposed regulatory changes, the Minnesota wolves would continue to receive protection as Threatened under the Endangered Species Act, and all other gray wolves in the lower 48 States would remain Endangered. The species is still relatively secure in Canada and Alaska, where it is not listed.

The wolf proposal was prepared in the Service's Twin Cities Regional Office, and comments should be addressed to the Twin Cities Regional Director. Public meetings will be held in Minnesota at the Twin Cities Federal Building at 10:00 am on August 4 and at the Rainy River Community College in International Falls at 7:00 pm on August 11,1982. Comments are due by 9/13/82.

REGIONAL BRIEFS

Continued from Page 2

shire), with assistance from an advisory group of local conservation organizations, university personnel, and private citizens.

The Reynolds Research Center in Critz, Virginia, has provided emergency assistance in the Virginia roundleaf birch *(Betula uber)* recovery effort. The Center's facilities and technical expertise are being used to propagate about 10,000 seedlings which will be used to augment the wild population, which now has declined to only 15 individuals. (For more on the *B. uber* recovery effort, see the April 1982 BULLETIN.)

Region 6—The final report on the Yampa River Fishes Study was submitted to the National Park Service by the Colorado River Fisheries Study Team. Eight adult Colorado squawfish *(Ptychocheilus lucius)* implanted with radio-transmitters migrated in early July to spawning areas. This spawning migration had been postulated but never documented. The total distance moved by these fish during June and July ranged from 55 to 219 miles. Collections of young-of-the-year fish indicate a drift behavior whereby larvae drift downriver and away from the spawning site to more favorable quiet backwater habitats. Identification and protection of larval nursery areas and long distance spawning migrations of adult Colorado squawfish may be the most significant factors for preservation of this Endangered fish.

A few humpback chubs *(Gila cypha)* were collected, but no bonytail chubs *(Gila elegans)* were found, although they formerly occurred in the study area. A few razorback suckers *(Xyrauchen texanus)* were collected in spawning condition. Though spawning activities probably occurred, success of such attempts is doubtful since no young or juvenile razorback suckers were collected in 3 years of intensive sampling.

Since the fall of 1975, the Service has monitored the spring and fall migration of whooping cranes *(Grus americana)* between Wood Buffalo National Park and Aransas National Wildlife Refuge. A recent summary of these sightings by the Service's Pierre Area Office shows that 775 sightings have been reported. Using criteria developed by the Whooping Crane Recovery Team, 351 sightings were classified as "confirmed," 101 as "probable," and 323 as "unconfirmed." A total of 1,132 birds were reported in the 351 confirmed sightings. The number of birds per sighting ranged from 1 to 22, but most sightings were of 6 or less birds. The majority of the sightings were in Saskatchewan, Canada (52 percent), North Dakota (16 percent), Kansas (9 percent), and Nebraska (8 percent). Whoopers seem to migrate at a slower pace in the fall, resulting in 70 percent of the confirmed sightings being reported during fall migration. Since fall 1977, characteristics of many of the sites of confirmed sightings in the United States have been evaluated (e.g., vegetation, slope, water). These evaluations have contributed significant information toward determining the preferred loafing, feeding, and roosting habitats of the whooping crane. Fifty-three completed evaluations and the summary report are on file at the Pierre Area Office.

Proceedings of the Rocky Mountain Regional Rare Plant Conference, held in Denver in 1981 (see December 1981 BULLETIN), are available from the Endangered Species Office in the Service's Denver Regional Office.

Except for species known only from old collections, the rarest plant in Region 6 is the Maguire fleabane daisey *(Erigeron maguirei)* from central Utah. In 1980, only one plant was seen. This spring, a Service botanist, in an intensive search of the historic range, found only 7 plants. The canyons in which it occurs are impacted by grazing and off-road vehicle use. The region is proceeding toward listing it as Endangered.

Region 7—A preliminary report from the field crew aboard the vessel "Sea Spray" indicates that small numbers of Aleutian Canada geese *(Branta canadensis leucopareia)* have been sighted on Alaid-Nizki Islands in the western Aleutian chain. These islands were the site of last year's release of 357 Aleutian geese from the Patuxent and Northern Prairie Wildlife Research Centers. Through band identification, it has been confirmed that most of the geese are from last year's release effort. Some of the birds from this group have also been observed on nearby Agattu Island. More recently, 62 Aleutian geese were observed on the Islands of Four Mountains in the eastern Aleutians. As of June 23, it was not known whether any of the geese were attempting to nest. Buldir Island remains the only confirmed breeding colony but optimism is running high, since never before during the recovery effort have Aleutian geese been observed on so many islands.

A female American peregrine falcon banded as a nestling on the upper Yukon River of Alaska in 1979 was observed nesting at a Tanana River eyrie this summer by biologists Skip Ambrose and Michael Amaral. The distance between this bird's natal area and its nesting territory is approximately 130 miles. The sighting gives credence to the speculation that young from healthy populations (such as the Yukon River population) are recolonizing areas in other parts of the State where numbers of nesting pairs are still depressed.

Photo by Stephen E. Cornelius

An arribada at Playa Nancite. Hughes and Richard (1974) stated that this phenomenon "must rank as one of the most impressive examples of mass activity in the animal kingdom."

Researchers Study Little-Known Costa Rican Olive Ridleys

The olive ridley *(Lepidochelys olivacea),* which today is considered the most abundant of sea turtles, is widely distributed in the tropical coastal waters of the Pacific, Indian, and South Atlantic Oceans. Two Costa Rican beaches, Playa Nancite and Playa Ostional, together host the largest aggregation of these sea turtles in the world, receiving annually from 400 to 600 thousand olive ridley nestings.

The olive ridley has been consistently neglected and little is known about the factors which determine its distribution and movements. The species is least understood with regard to the reproductive stages of its life cycle. Until the 1960's it was believed that *L. olivacea,* unlike Kemp's ridley, nested singly—not in arribadas (or synchronous nesting activity). Since then, however, the species has been known to form arribadas in Mexico, Costa Rica, and India. How ridleys coordinate the mass nesting emergence and what precisely are the selective advantages of such a strategy are unclear.

In recent years, the arribada nesting phenomenon has been a key factor facilitating the mass destruction of some of the great ridley rookeries. The Mexican fleets which once represented the largest sea turtle aggregations have been decimated by over-exploitation. Populations on the coast of Orissa, India, are apparently undergoing the same destruction.

Until recently, ridleys nesting at Nancite and Ostional were considered reasonably secure, both because of the natural isolation of these nesting beaches, and because of the likelihood that the Costa Rican turtles were distinct from the Mexican populations. This sense of security was dashed, however, with the discovery of massive commercial harvests in Equador where some Costa Rican ridleys are known to migrate. The survival outlook for the species also was considerably altered when a tagged Costa Rican ridley was recovered in Mexican waters in 1981, opening the possibility that the Costa Rican fleets may, in fact, reach and mix with the over-harvested Mexican fleets. During the past 10 years, the size of arribadas at Nancite has remained approximately the same. Because of heavy and constant egg poaching, however, the size of arribadas at Ostional may have decreased by 30% during the past decade.

In August 1980, a long-term tagging program directed at gathering information on seasonal movements, fidelity to mass and solitary nesting strategies, and reproductive potential of individual olive ridleys was begun at Nancite and Ostional. This scientific investigation, which was continued in 1981, is the first to be conducted in Costa Rica since the initial work done in Nancite in the early 1970's by David Hughes, Joseph Richard, and Stephen Cornelius. Research during 1980 and 1981 was jointly sponsored by the University of Costa Rica (UCR), the Costa Rican National

Photo by Jack B. Woody

Tagged olive ridley sea turtle at Playa Nancite, Costa Rica.

Park Service (CRNPS), and by the U.S. Fish and Wildlife Service. The research was coordinated by Douglas C. Robinson of UCR and by Stephen E. Cornelius, under contract to the Service.

After 2 years, the study has already provided significant new data which are central to the species' conservation and survival. The cooperative efforts of UCR students and CRNPS guards at Santa Rosa National Park have been crucial to the success of the study. Student stipends provided by World Wildlife Fund have also enhanced the program.

Study Sites

Because of their physical isolation and legislated protection within Costa Rican waters and because of the large numbers of turtles which continue to nest there, Nancite and Ostional hold great importance in the conservation of the ridley. Their importance to ridley reproduction was recognized at the World Conference on Sea Turtle Conservation (Washington, D.C., November 26–30, 1979). The resulting document "Sea Turtle Conservation Strategy," placed Nancite and Ostional second on the list of most critical sea turtle habitats worldwide.

Nancite, which is approximately 1075 m long, is located in Santa Rosa National Park in northwest Guanacaste Province. This nesting area has benefited greatly from over ten years of CRNPS protection. Ostional is located approximately 90 km south of Nancite and extends for approximately 800 m. Research at this beach continues to be hampered by poor relations with the local community, heavy poaching of eggs during arribadas, and confusion as to which government agency is responsible for the protection and management of the species and its habitat. A presidential decree signed in December 1981 specifically addressed some of these problems and will hopefully soon permit ridley studies there to expand in scope.

Arribadas Year-round

Local lore throughout the range of the olive ridley is surprisingly consistent, predicting that arribadas will happen during the last quarter moon accompanied by strong onshore winds and on a rising tide after nightfall. However, researchers have found it difficult to substantiate the association between these extrinsic factors and the actual emergence schedule on either beach.

Even though prior to 1981 arribadas had not been known to occur during the 5–6 month period between July and December, it was suspected for several years that mass nesting of olive ridleys occurred year-round. Last year, for the first time since the park was established in 1970, the Santa Rosa Park administration made is possible to station guards permanently at Nancite. The guards witnessed four arribadas during the dry season (December 1980–May 1981) as well as made valuable observations on interarribada nesting, hatchling emergence, predation, and weather events.

Tagging Operation and Results

Among the main objectives of the ongoing tagging operation is to mark large numbers of emerging female turtles, facilitating the study of seasonal movements, nesting periodicity, small group cohesiveness, mass nesting fidelity, and solitary nesting strategy. An important related activity is the registry of reobservations of turtles marked at the two beaches in 1980 and 1981, or earlier, to analyze the relative staying power and to note the general suitability of two different tag types which have been used for marking.

Tagging followed a prescribed schedule which allocated blocks of tags according to temporal, spatial, and behavioral aspects of the nesting season at both beaches. Monel metal tags as well as colored plastic tags were used both years. Currently, the tagged Costa Rican population is approximately 30,100, of which 20,360 carry a single metal tag, 6,170 a single plastic tag, and 3,570 which were double tagged with one of each type. Both plastic and metal tags were lost at a greater rate than expected.

In 1981, 22 tagged ridleys were reobserved outside Costa Rican waters. Nearly all countries between Equador and Mexico were represented in this count: 11 from Equador, 4 from Guatemala, 2 from El Salvador, and 1 each from Colombia, Panama, Nicaragua, and Mexico. One turtle was recovered from an oceanic location approximately 2,100 km due west of Costa Rica. Nearly 80% of all distant reobservations have come as a result of incidental catches by commercial fisheries (shrimp, shark, tuna). The remainder were returned by turtle fishermen (15%) and researchers (6%).

Photo by Stephen E. Cornelius

An arribada under sunset.

Population Estimates

Until recently, estimates of female ridleys involved in arribadas have been based mainly on the experience of the various observers—on the person's perception of what 3,000 turtles should look like on 1 km of beach. No matter how accomplished an individual becomes at making such estimates, it remains a very inaccurate method by which to measure the absolute size of the nesting population.

The critical need for more precise information regarding the reproductive effort of the olive ridley is pointed out by the magnitude of actual counts of ridleys taken by heavy commercial harvest in the east Pacific. These harvest counts offer hard data, actual counts of turtles captured, and are an *ex post facto* estimate of a population in distress.

For the past several years, the quadrat method has been used to estimate the number of female ridleys participating in arribadas. This is a very general method that is actually a true census (a total count) but only of a representative portion of the beach. In 1980 and before, there was some question as to how best to interpret the data generated by quadrat counts since there was little or no information for many associated variables, i.e. rate of multiple emergence, time on the beach, and size of the available nesting beach.

Considerable efforts were made in 1981 to improve the quadrat count system. Census quadrats of 100 m were established in the mid beach zone at Nancite. A formula based on quadrat counts and corrected for all of the variables mentioned above was used to estimate the size of the nesting population. As more data become available for the numerous variables, the formula will be refined. The researchers feel that the formula applied to quadrat counts is an important step towards the goal of estimating the total population.

Sizes of the major arribadas at Nancite in 1981 were placed at 50,000 (August), 108,000 (September), 110,000 (October), 72,000 (November), and 18,000 (December). These estimates were compared to other calculations based on post-arribada nest density and the reobservation rate of tagged turtles. Calculations in 1981 indicate that the population probably totals 220,000 to 550,000 adult females.

Hatching Success

Hatchling emergence was quantitatively measured by V-shaped drift fence traps located at five locations in the mid beach zone. Trap wings were set at an angle of 135° and permitted an estimated capture efficiency of 100% for nests opening within 6 meters to 5% for those opening 20 meters or more from the trap.

Individual nests were marked at the time of laying with a short piece of numbered garden hose attached to a 20–40 cm long wooden stake. The stake was buried 1m distant from the nest, and a colored plastic flagging bearing the number of the nest was placed on top of the clutch just before the turtle filled the cavity. Reappearance of the flagging during a subsequent arribada indicated that the nest was at least partially destroyed by another nesting turtle. In the same manner, a predated marked nest resulted in the ribbon appearing at the surface near the nest site. At 45 days, a hardware cloth rectangular basket was placed over the nest, leaving room for the hatchlings to emerge and be counted. Towards the end of the incubation periods (about 50 days) the nest was opened and numbers of live and moribund hatchlings left in the nest were determined.

Photo by Stephen E. Cornelius

An olive ridley hatchling.

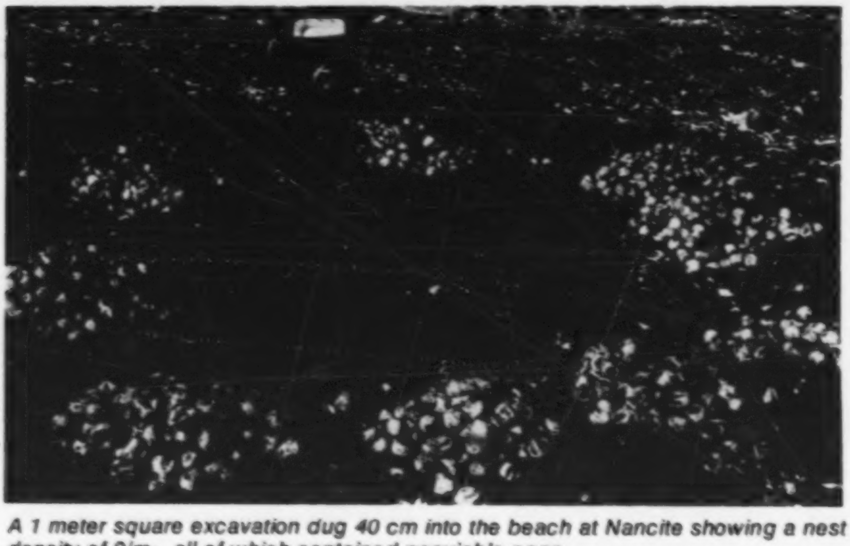
Photo by Stephen E. Cornelius

A 1 meter square excavation dug 40 cm into the beach at Nancite showing a nest density of $9/m_2$, all of which contained nonviable eggs.

The researchers have estimated that during an average wet season arribada 45% of the clutches are physically disrupted by predation, beach erosion, and from nesting turtles during the same or subsequent arribadas. Of the remaining clutches that survive intact to term, 93% are lost to microorganisms and possible microenvironmental unbalances at various stages of development. Of the 3% of the original clutches in which some successful hatching and emergence occurs, 75% of the eggs fail to develop to term or hatchlings die in the nest. The result of these calculations is the live hatch of 94,000 hatchlings from an arribada of 100,000 clutches averaging 106 eggs each—a hatching success rate of 0.89%.

Some of the factors listed are involved in determining hatching success at other beaches and with other sea turtle species. Conspicuous to Nancite is the extraordinary number of entire clutches which show no embryological development or which stop development at various stages before full-term incubation. A preliminary study has been undertaken by UCR to determine what microorganisms are present in the beach environment which could be possible causes for the low-hatching success.

Future Plans

Next year's plans include the continuation of both the tagging operation and of movement and distribution studies. The latter will be supplemented by a study of surface currents which hopefully will provide new information about adult and hatchling olive ridley movements. Plans are also underway to establish a regional olive ridley program which would involve all countries where the species occurs.

New Publications

Endangered and Threatened Wildlife of the Chesapeake Bay Region: Delaware, Maryland, and Virginia by Christopher P. White is now available for $5.50. This field guide documents the status, description, habitat, behavior, and distribution of each of 41 federally protected animals and plants classified as Endangered or Threatened in the Chesapeake Bay region. The 4½" × 7" volume has 160 pages and is illustrated with full-color photographs and paintings, and distribution maps. It was published as a cooperative project supported by the Chesapeake Bay Foundation and the U.S. Fish and Wildlife Service. Order [#0-87033-287-2] from Tidewater Publishers, P.O. Box 456, Centreville, Maryland 21617.

Phases I–IV of the U.S. Fish and Wildlife Service sponsored Kellert reports on public attitudes toward wildlife are now available through the Government Printing Office (GPO). Copies may be ordered by calling the GPO Order Desk at 202/783-3238, giving the name and stock number of the report, and VISA or Master Charge card number; or by writing to the U.S. Government Printing Office, Superintendent of Documents: S.S.M.C., Washington, D.C. 20402, giving the same information as above, and enclosing a check made out to GPO.

The GPO stock numbers and prices for the four publications are: Kellert, Stephen R., "Phase I—Public Attitudes Toward Critical Wildlife and Natural Habitat Issues," #024-010-00-623-4, $6.50; Kellert, Stephen R., "Phase II—Activities of the American Public Relating to Animals," #024-010-00-624-2, $7.00; Kellert, Stephen R. and Joyce K. Berry, "Phase III—Knowledge, Affection and Basic Attitudes Toward Animals in American Society," #024-010-00-625-1, $6.50; and Kellert, Stephen R. and Miriam O. Westervelt, "Phase IV—Trends in Animal Use and Perception in 20th Century America," #024-010-006-21-8, $7.00.

The University Presses of Florida in cooperation with the State of Florida Game and Fresh Water Fish Commission have announced the availability of the sixth volume in the series, *Rare and Endangered Biota of Florida*, Peter C. H. Pritchard, general editor. Volume VI, *Invertebrates*, edited by Richard Franz is now available for $7.50. The other volumes are available at the following prices: Volume I—Mammals, at $5.00; Volume II—Birds, at $7.00; Volume III—Amphibians and Reptiles, at $5.50; Volume IV—Fishes, at $5.00; and Volume V—Plants, at $10.50. They are now all available from the University Presses of Florida, 15 Northwest 15th Street, Gainesville, Florida 32603.

A cumulative index of the *Endangered Species Technical Bulletin* (July 1976—December 1981) is now available. Copies may be requested by writing the Office of Endangered Species, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

The *U.S. List of Endangered and Threatened Wildlife and Plants* (50 CFR 17.11 and 17.12), reprinted January 1, 1982, is now available. Please request copies from the Office of Public Affairs—Publications, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

BOX SCORE OF SPECIES LISTINGS

	ENDANGERED			THREATENED			SPECIES*
Category	U.S. Only	U.S. & Foreign	Foreign Only	U.S. Only	U.S. & Foreign	Foreign Only	TOTAL
Mammals	15	17	224	3	0	21	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	52	2	0	7	1	2	64
TOTAL	194	43	445	45	7	24	758

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 10 animals
8 plants

Number of Critical Habitats listed: 51
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 54
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

June 30, 1982

July 1982 Vol. VII No. 7

ENDANGERED SPECIES

Technical Bulletin Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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DEPOSITORY

Endangered Classification Extended to Ocelots in the U.S.

The ocelot *(Felis pardalis)* was listed as Endangered throughout almost all of its range in 1972 but, due to an oversight in the original rulemaking process, those few occurring in the United States (Texas and Arizona) did not receive protection. Accordingly, the Service has published a separate rule (F.R. 7/21/82) extending the Endangered classification to ocelots occurring in these two southwestern States.

Background

Habitat modification and market hunting for its valuable fur resulted in a serious decline in the ocelot throughout its range in North, Central, and South America, leading the Service to list the cat in 1972 as Endangered under the Endangered Species Conservation Act of 1969. The requirement in the 1969 law, however, that governors of any affected U.S. States be notified at the time of listing was overlooked, and the ocelot was listed as a "foreign" species only. When the oversight was discovered and it appeared that ocelots in the U.S. were not Federally protected under the Endangered Species Act of 1973 (which superceded the 1969 Act), the Service published a proposal (F.R. 7/25/80) to rectify the original error and to gather additional information on the species' status. Four other "foreign" species, which were thought to be in the same situation as the ocelot, were also proposed: the short-tailed albatross *(Diomedea albatrus)*, thick-billed parrot *(Rhynchopsitta pachyrhynchus)*, jaguar *(Panthera onca)*, and margay *(Felis wiedii)*. These species,. however, are not included in the final rule.

Only two comments pertaining to the proposed ocelot listing were received. The Governor of the State of Texas fully supported listing the ocelot, as well as the other species in the proposal. In opposition, a private organization called the National Association for Sound Wildlife Programs asserted that (1) there is no scientific documentation that the ocelot throughout its range is Endangered or Threatened in the wild, (2) there is ample evidence that the species has been exterminated in the wild in the U.S., and (3) if it is not exterminated, there is no evidence of a viable population in the wild in the U.S. The Service found that there is ample evidence to disprove all three of the Association's comments. Based on the best scientific and commercial information available, the 1972 listing is appropriate and the status of the ocelot is continuing to deteriorate due to habitat destruction throughout vast areas of Latin America. Evidence has been received showing that a viable breeding population of 12 to 60 animals does still occur on about 50,000 acres in southeastern Texas, but they are subject to the same threats as ocelots to the south. A few ocelots are thought to cross the border occasionally into Arizona; therefore, that State was included in the rule.

Photo by Tom Smylie/U.S. Fish and Wildlife Service

Ocelots in Texas and Arizona are now protected as Endangered by the Endangered Species Act.

Effects of the Rule

The listing rule extends the protection of the Endangered Species Act of 1973, including the prohibitions on "taking" and the Federal habitat conservation provisions under Section 7, to ocelots in the two States. (Taking of ocelots is already prohibited under Texas law.) About 20,000 acres of ocelot habitat currently are being managed for the cat at Laguna Atascosa National Wildlife Refuge. The remaining 30,000 acres in private ownership are used primarily for livestock grazing and lease hunting for deer, uses which are entirely compatible with the listing and will not be affected negatively in any way.

Critical Habitat was not determined at this time for two reasons. Ocelots are extremely valuable commercially for their fur, and pinpointing the location of their last U.S. population could encourage illegal taking. Further, much of the ocelot's habitat is already protected on the Laguna Atascosa Refuge.

The 2-year deadline imposed under amendments to the 1973 Act for making final determinations on proposed listings has expired for the other species included in the proposal, although they are not precluded from future listing consideration.

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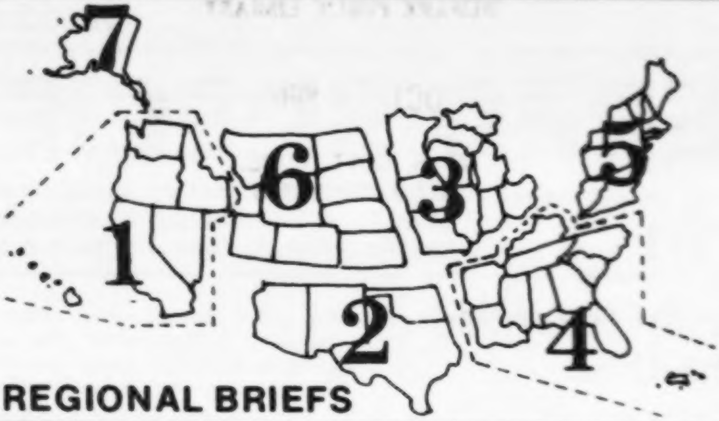

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of July:

Region 1—Property, totalling 577 acres, at Blue Ridge (Tulare County, California) was optioned on June 23, 1982. This property is part of the important roost area for the severely Endangered California condor *(Gymnogyps californianus)*.

Field work for the forest bird survey in the Commonwealth of the Northern Marianas was completed on June 5, 1982. Three months were spent collecting field data during which the Islands of Rota, Tinian, Saipan, and Aguiguan were surveyed by Service personnel and were assisted throughout by Department of Natural Resources staff from the Mariana Islands. The variable circular plot method was used in the survey, and on the four islands 42 transects and 782 stations were marked. Counts were made at each of the stations. In addition to the forest bird survey, several previously unreported seabird colonies were visited and mapped. This is the first comprehensive and systematic survey to be completed on these islands. The results will be used in updating the Endangered and Threatened Species List, as an information base in planning development projects, and in formulating environmental legislation in the newly established commonwealth government. Preliminary findings include the following: The Tinian monarch, *Monarcha takatsukasae*, an endemic species on Tinian, was found to be abundant though it is listed as Endangered. The Micronesian megapode, *Megapodius laperouse*, also listed as Endangered, was found to have a more extensive distribution on Saipan than was previously thought. The nightingale reed-warbler, *Acrocephalus luscinia*, also listed as Endangered, is common throughout most of Saipan, but is rare on Aguiguan. The Vanikoro swiftlet, *Aerodramus vanikorensis*, a candidate for listing, was not found on Rota or Tinian, and has apparently become extinct on these two islands within the last 20 years. The bridled white-eye, *Zosterops conspicillata*, another candidate, is abundant on Saipan, Tinian, and Aguiguan, but has disappeared from the lowlands of Rota within the last 20 years. Possibly a newly introduced disease has affected the swiftlet and white-eye populations. An undescribed seabird colony on Naftan Islet, 1 km south of Aguiguan, harbored several non-listed seabird species, including the sooty tern, *Sterna fuscata;* common noddy, *Anous stolidus;* wedge-tailed shearwater, *Puffinus pacificus;* brown booby, *Sula leucogaster;* and masked booby, *Sula dactylatra*.

During 1981, the two Marianas mallards *(Anas oustaleti)* kept at Sea World in San Diego, California, died. They are believed to have been the only birds of their species in captivity, and they died before producing any young. Once occurring on Guam, Saipan, and Tinian, the duck is now extinct on Guam and estimates made in 1979 suggested that probably fewer than 20 were still in existence in the wetlands of Saipan and Tinian. The decline has been attributed to hunting by humans and introduced predators (*such as the Polynesian rat*), and the loss of wetland habitats due to changing land uses. Lucian Kramer, a

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevado, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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biologist with the Service's Pacific Islands Area Office in Honolulu, spent two weeks in Saipan in late May of this year in an attempt to locate and capture up to two pairs of Marianas mallards so that the captive propagation effort could be continued. Mist nets were erected in the vicinity of Lake Susupe on Saipan, and surrounding wetlands were intensively watched. No Marianas mallards, however, were heard or seen. Reports of sightings were followed up, but were discovered to be misidentifications of other bird species, often including Chinese bitterns and other ducks that pass through Saipan on their yearly migrations. Although it cannot be stated that the Marianas mallard is extinct, it can be said that its numbers must be dangerously low.

Following the May 10 emergency listing of the Ash Meadows Amargosa pupfish *(Cyprinodon nevadensis mionectes)*, and the Ash Meadows speckled dace *(Rhinichthys osculus nevadensis)*, a status survey for these two Endangered fishes was conducted by biologists from the Reno and Sacramento Endangered Species Offices and the Nevada Department of Wildlife. Efforts continue to secure the privately owned habitat of the two Ash Meadows fishes through land exchange proposals.

The California least tern *(Sterna albifrons browni)*, is experiencing an exceptionally poor nesting season in San Diego County so far this year. Essentially, no young were fledged in the first nesting period (through June). Although avian and mammalian predation is an annual problem at most nesting colonies, several colonies usually manage a successful breeding season. Predation has been so acute and widespread to date that all colonies have completely failed, except at Santa Margarita River, which has the highest numbers of nesting pairs in over a decade. If any recruitment is to occur this year, it will have to occur in the second nesting period (largely renesters and second year birds breeding for the first time).

Three peregrine falcon *(Falco peregrinus)* chicks, bred in captivity at the Santa Cruz Predatory Bird Research Group Lab, were transported to the Oregon coast and placed in an artificial nest structure on a cliff as part of a reintroduction project. The project, being administered by the Oregon Department of Fish and Wildlife, is part of an effort to reestablish a viable population of peregrine falcons in Oregon. The birds made the transition to the hack box in good condition. Following release from the hack box, two birds were lost to predation. The remains of one falcon confirmed predation by a great horned owl *(Bubo virginianus)*. To date, the third falcon is doing fine, is being monitored by radio telemetry, and hopefully will establish a territory somewhere along the Oregon coast.

A draft Environmental Assessment/Environmental Impact Report (EA/EIR) on the San Bruno Mountain Habitat Conservation Plan and Endangered Species Section 10(a) Permit, San Mateo County, California, is available for public review and comment (F.R. 7/26/82).

Region 2—Little Creek in Gila National Forest (Gila Wilderness), Arizona, has been renovated to eliminate exotic brown trout *(Salmo trutta)*, and barriers were built to prevent their return, which allowed reintroduction of native Gila trout *(Salmo gilae)*. These activities result from the 1979 Gila Trout Recovery Plan, and are designed to help lead to an eventual downlisting of the species.

The Western Division of the American Fisheries Society held its annual meeting recently in Las Vegas, Nevada. One session was devoted to the rearing of Endangered fishes, and four of the seven papers presented at the session involve Dexter National Fish Hatchery (New Mexico). Proceedings of the session will be published separately by the U.S. Forest Service.

Dexter personnel have tagged all of the 42,000 1982 year-class of razorback suckers *(Xyrauchen texanus)* and have stocked 16,000 into historic habitat within Arizona.

Region 3—On July 21, five immature peregrine falcons from the University of Saskatchewan were placed on a hacking tower at Kellogg, Minnesota. The cooperative effort also involved the Service, the Minnesota Department of Natural Resources, and The Nature Conservancy; Northern States Power donated the poles and put them in place.

The recent Michigan Department of Natural Resources (DNR) census of the State's Endangered Kirtland's warblers *(Dendroica kirtlandii)* recorded 200 singing males, a drop of 14 percent from 1981. Biologists estimate the total number of males and females to be about 400. The annual event is a cooperative effort of the Michigan DNR, the Service, and local Audubon Society chapters.

The first confirmed bald eagle *(Haliaeetus leucocephalus)* hatched in Missouri in 40 years is joining two eaglets from Minnesota at a hacking station on Mingo National Wildlife Refuge in southern Missouri. Concern for the Missouri eaglet (nicknamed "Adversity") mounted after first one parent, then the other, disappeared. Although underweight when taken from the nest, the young is eating and appears to be adapting well. The project involves the Service, the U.S. Army Corps of Engineers, and the Missouri Department of Conservation.

Region 4—Researchers working in cooperation with the Patuxent Wildlife Research Center have estimated that there may be 250 Everglade kites *(Rostrhamus sociabilis plumbeus)* now present in Florida. This is considerably higher than the 109 which were counted in a previous survey conducted in late 1981. The kites dispersed from their normal range following the severe drought which struck south Florida in

Continued on page 5

U.S. Fish and Wildlife Service Photo

On July 21, 1982, the Newton Corner Regional Director, Howard Larsen (left) presented Gary J. Taylor (right), Nongame and Endangered Species Program Manager for the Maryland Wildlife Administration, with a Service award and Letter of Commendation, acknowledging Taylor's involvement with endangered species conservation. Taylor is the team leader of the Chesapeake Bay Bald Eagle Recovery Team and is largely responsible for the completion of the Chesapeake Bay Bald Eagle Recovery Plan, signed by the Service's Director May 19, 1982.

☆U.S. GOVERNMENT PRINTING OFFICE: 1982—361-580—141/113

Rulemaking Actions—July 1982

McKittrick Pennyroyal Listed As Threatened with Critical Habitat

The Service has listed the McKittrick pennyroyal *(Hedeoma apiculatum)* as a Threatened species and has determined its Critical Habitat (F.R. 7/13/82). This plant occurs in Texas and New Mexico.

The number of existing individuals is estimated to be less than 1,100 and their reproductive potential appears to be low. Populations occurring on Federal lands are threatened by the gradual destruction of habitat through long-term overuse, and need to be considered in plans for park development. The single known population on private land would be potentially threatened by any major change in land use.

McKittrick's pennyroyal, a member of the mint family, was first collected in 1882 but remained undescribed until 1939. A long-lived perennial herb, this plant forms dense tufts of leaves from woody rootstocks and stands 10 to 15 cm in height. Its showy pink flowers are solitary or in two to three-flowered clusters, 2 cm in length and, as with many mints, the flowers are axillary and crowded towards the apex.

Hedeoma apiculatum is endemic to open, limestone rock surfaces and outcrops in canyons along streamways in the Guadalupe Mountains of Texas and New Mexico at elevations above 1660 meters and is particularly vulnerable to disturbance. These plants are found in a substrate consisting mostly of sands caught in rock fissures and in weathered pockets of limestone. Both the plant and its fragile habitat could be threatened by trampling and unplanned development.

Only two comments were received following the publication of a proposed rule (F.R. 8/15/80) to list the species with Critical Habitat. The Superintendent of Guadalupe Mountains National Park in Texas commented through the Southwest Regional Director of the National Park Service on the proposed Critical Habitat. He strongly recommended, for management reasons, that the McKittrick Ridge site be deleted from the proposal. The Service, however, retained this area in the final Critical Habitat determination since it is one of the three major populations and, therefore, necessary and critical to the species' continued survival.

The Texas Organization for Endangered Species commented on the shortness of time between publication of the proposal and the date set for the public meeting (8/27/82). The Service explained an oversight which caused this unfortunate situation. No comments were received from the Governors of Texas and New Mexico. One National Park Service representative made an oral comment at the public meeting, expressing concern about the effect a Critical Habitat determination might have on park hiking trails, particularly McKittrick Ridge trail. The Service responded that it was extremely unlikely that they would request that the trail be moved, and stated that it is appropriate at this time to monitor the impact of hikers on this population.

The Critical Habitat for *Hedeoma apiculatum* includes the three areas in Texas where the three largest populations of the species occur. Critical Habitat was not proposed at this time for the smallest population in Guadalupe Mountains National Park (Texas), the population in Lincoln National Forest (New Mexico), or the population located on private land. These are all very small populations which are not well studied or understood, in contrast to the three areas with the larger populations which constitute the Critical Habitat. This rule becomes effective August 14, 1982.

Hawaiian Plant Proposal Reopened for Comments

The comment period for the Service's proposal to list *Panicum carteri* (Carter's panicgrass) to be an Endangered species and determine Mokoli'i Island, Hawaii, as its Critical Habitat was reopened for 90 days (F.R. 7/29/82). This extension is intended to allow the Service to discuss the issue with local officials and receive further comments from such officials and from the public.

Panicum carteri is an annual grass known only to occur on Mokoli'i Island, Hawaii, and was believed to be extinct until its rediscovery in 1976. It was proposed for listing as Endangered with Critical Habitat on January 30, 1981, and comments were received until April 30, 1981. Comments received in response to that proposal included one from the Governor of Hawaii and one from the Mayor of Honolulu, both recommending against taking the proposed action.

In particular, the Service seeks the views and recommendations of those possessing information regarding the status of this species, the suitability of Mokoli'i as Critical Habitat for it, and possible beneficial or detrimental consequences likely to follow from its listing and designation of Critical Habitat. All further comments and recommendations should be submitted to the Service by October 27, 1982; please mail them to the Director (OES), U.S. Fish and Wildlife Service, Washington, D.C. 20240; or Pacific Islands Administrator, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, P.O. Box 50167, Honolulu, Hawaii 96850.

Service Studies Alligator Regs

The Service published an advanced notice (F.R. 7/16/82) making known its intent to review special rule 50 CFR 17.42(a) on the American alligator *(Alligator mississippiensis)*, and seeking comments and suggestions regarding the workability of the current special rule. This rule regulates commercial activities with hides, meat, and parts (teeth and skulls) of American alligators. Comments and suggestions received prior to August 16, 1982, will be used to help determine whether changes are appropriate and, if so, to formulate a proposed rulemaking revising the special rule.

Permit Regulations Revised

Regulations controlling the issuance of permits for activities involving Endangered and Threatened species have been revised by the Service (F.R. 7/15/82). This final rule is effective August 16, 1982.

The revision contains three distinct parts: (1) consolidation and simplification of permit requirements, (2) clarification of the schedule of permit application fees, (3) the implementation of a formal appeals procedure, and (4) procedures for objecting to issuance of permits. In addition to Part 17 (Endangered and Threatened wildlife and plants), the revision also affects Parts 13 and 16 under 50 CFR.

Address correspondence regarding this rule to the U.S. Fish and Wildlife Service, Federal Wildlife Permit Office, P.O. Box 3654, Arlington, Virginia 22203, or call 703/235-1903.

African Elephant Special Rule Revised

The Service has published in final the revised rule (F.R. 7/20/82) regulating trade in the ivory of the Threatened African elephant *(Loxodonta africana)*. This rule complements but does not amend the regulation of the species under Appendix II listing on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

In 1978 when the species was listed under the Endangered Species Act of 1973, a special rule, still in effect, was promulgated which makes interstate and foreign commerce of the African elephant (and its parts and products) illegal. Since that time, the Service has found the restrictions on interstate commerce burdensome, ineffective, and unnecessary.

The new special rule requires all ivory imported into the United States to be marked according to the recommendations of CITES, and rescinds all interstate regulation of the species. The rule will, thereby, allow the Service to concentrate its law enforcement efforts more effectively, and counteract the African elephant's primary problems, poaching and smuggling of ivory in its raw form.

The new special rule eliminates the requirement that raw ivory must originate in and remain in a chain of trade composed of Party countries from country of origin to the U.S. Instead, the rule requires that raw ivory originate in a Party country and be exported to the U.S. from a Party country. The rule adds the requirement that raw ivory imported into the U.S. bear a punch-dye mark established by the rule, which will help assure that the ivory was legally acquired in the country of origin. An 18 month exception to this import requirement is provided. However, effective September 20, 1982, unmarked raw ivory exported from the U.S. during this time must bear a mark provided by a Service permit.

With regard to worked ivory, the rule eliminates the requirement that it originate in a Party country and remain in a chain of trade composed of Party countries. It substitutes, instead, a requirement that worked ivory must be exported to the U.S. from a Party country.

The proposed rule covered all parts and products of the African elephant, whereas the final rule only covers ivory—adequate controls exist for live elephants and for other parts and products in the regulations that implement CITES (50 CFR 23). The rule becomes effective September 20, 1982. In general, the comments on the special rule as proposed (F.R. 7/17/82) favored its adoption. Comments that recommended changes in the proposed rule are addressed in the final rule. Other differences between the proposed and final rules are also detailed in the text of the rule.

REGIONAL BRIEFS

Continued from page 5

1981, and have been found to be nesting this year in the area of Lakes Kissimmee and Tohopekaliga in Osceola County. No previous nesting records are known for this area. About 50 nesting attempts have been made so far this season with 24 young being produced. About 20 of these young probably have survived largely as the result of biologists taking unstable kite nests constructed in cattails and transferring them to stable wire baskets attached to poles (at the same height and location as the original nest). The adult kites have generally accepted the nest transfer within 30 minutes after making the change.

Region 6—The Black-footed Ferret Advisory Team met in Cheyenne, Wyoming, on June 22. The major item of discussion was the joint research proposal prepared by Service biologists of the Denver Wildlife Research Center and biologists with Biota Research and Consulting, Inc. The researchers were given the go-ahead by the team to do an intense and coordinated survey to determine a minimum number of black-footed ferret *(Mustela nigripes)* litters/young in the Meeteetse, Wyoming, area and to obtain dispersal information on young ferrets.

A whooping crane *(Grus americana)* from the Grays Lake NWR flock was found dead on July 15 in the San Luis Valley in southern Colorado. The bird had been spending the summer on private land near Monte Vista NWR. Cause of death is unknown, so a necropsy will be done.

Region 7—The triennial survey of the breeding colony of Aleutian Canada geese *(Branta canadensis leucopareia)* on Buldir Island has been completed. The breeding population on Buldir is estimated at 280 pairs, almost a two-fold increase since the last census in 1979. Preparations are nearly completed for what could be the last large release of captive-raised Aleutian geese. The recovery team has recommended that trapping wild geese from Buldir Island and transplanting them to release islands should become the primary means of establishing new breeding colonies of this Endangered subspecies of goose. Accordingly, most of the captive flock being held at Northern Prairie Wildlife Research Center will be released this August in the western Aleutians. Concurrent with this effort, a team of eight Service biologists and volunteers will capture family groups of wild Aleutian geese on Buldir and transplant them to Agattu Island. It is hoped that, when the young from these families are sexually mature, they will return to the area of their first flight (Agattu) to breed.

CITES News—

Bobcat Rule Suspended

A final rule (F.R. 10/14/81) authorizing the export of bobcat *(Lynx rufus)* taken during the 1981–82 season is again suspended, this time for a 4-month period (F.R. 7/15/82). This action, taken to conform with the U.S. District Court injunction prohibiting the Service from authorizing the export of bobcat after July 1, 1981, became effective July 15, 1982.

On February 3, 1981, the District Court for the District of Columbia found the Office of Scientific Authority's (OSA) guidelines for allowing export invalid and issued an injunction which prohibited the Service from authorizing export of the species under CITES. In light of this, the Service postponed the effective date of its October 1981 final rule for 60 days while it sought vacation of the injunction. However, on December 15, 1981, the District Court denied the motion of the Service to vacate the injunction on grounds that OSA failed to promulgate guidelines consistent with a previous ruling by the U.S. Court of Appeals.

Accordingly, the Service remains under court injunction prohibiting the export of bobcat and has suspended the October rule twice—first for 6 months (F.R. 1/12/81) and, now, for 4 months. Guidelines for export of bobcats in the 1982–83 season are now being developed to satisfy court requirements. After presentation of the new guidelines to the court, further notice will then be published to announce whether or not bobcats taken in the 1981–82 season may be exported. (See the November 1981 BULLETIN for more information on the October 1981 rules).

Recovery Plan News: Three Plans Approved

During the past month the Service's Director approved three recovery plans for listed species: Gray Bat Recovery Plan (7/8/82), Red Wolf Recovery Plan (7/12/82), and Kendall Warm Springs Dace Recovery Plan (7/12/82).

Gray Bat

The gray bat *(Myotis grisescens)* is perhaps the most restricted to cave habitats of any United States mammal, migrating seasonally between hibernating and maternity caves which provide specific feeding and thermoregulatory needs. It congregates in larger numbers and in fewer caves than most other North American bats, a phenomenon which, in itself, poses a serious threat to the species.

Prior to recent major declines, individual hibernating populations of gray bats contained from 100,000 to 1,500,000 or more individuals. Currently, approximately 95 percent (1,575,000 bats) of the entire known population hibernates each winter in only nine caves in southeast U.S., with more than half in a single cave. Populations are found mostly in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee, but a few occur in small portions of Florida, Georgia, Kansas, Indiana, Illinois, Oklahoma, Mississippi, Virginia, and possibly North Carolina.

The gray bat is the largest species of *Myotis* in the eastern U.S. Unlike other members of the genus, its wing membrane connects to the foot at the ankle rather than at the base of the first toe. Unlike all other bats of the eastern U.S., the gray bat has unicolored dorsal fur—all other eastern bats have distinctively bi- or tri-colored fur on their backs. Following molt in July or August, gray bats are dark gray, but they often bleach to chestnut brown or russet between molts.

Reason for Decline

The primary cause of the gray bat's decline is human disturbance. Each arousal from hibernation by human entry into a hibernaculum is energetically expensive, using the bats' energy reserves which cannot be replaced before spring emergence. Simple arousal and movement to a new nesting place probably costs the bat as much as it would normally expend in 10 to 30 days undisturbed hibernation. Repeated entries during a single winter can exhaust the bats' limited energy reserve, resulting in high levels of mortality. Disturbance of maternity caves can cause female bats to drop nonvolant young or leave the roost, causing a loss of precious communal body heat.

Other probable causes of gray bat decline are (1) the influence of pesticides, (2) other chemical pollutions or siltation of waterways over which gray bats forage, and (3) deforestation of areas near cave entrances and between caves and rivers or reservoirs where gray bats may feed. Cave commercialization and improper gating of cave entrances have also contributed to the species' decline.

Recovery Actions

Since the gray bat was listed as Endangered in 1976, encouraging progress has been made. The Service has purchased Sauta Cave, an important known summer cave, and is considering other important acquisitions, including the only major gray bat hibernaculum in Kentucky. The Service also fenced and posted Cave Springs Cave, a major summer cave on the Wheeler National Wildlife Refuge in Alabama. A decade ago, the formerly large maternity colony at this cave was destroyed, and only a transient group of approximately 9,000 bats remained. Following only 2 years of protection from human disturbance, this colony has returned to maternity status and increased to more than 19,000 bats.

Acquisition and management actions have been undertaken by a number of Federal and State agencies. Especially active in acquisitions and protection of gray bat caves are Region 4 of the Service, Tennessee Valley Authority, National Park Service, U.S. Forest Service, U.S. Army Corps of Engineers, and Missouri Department of Conservation, and the Tennessee Wildlife Resources Agency.

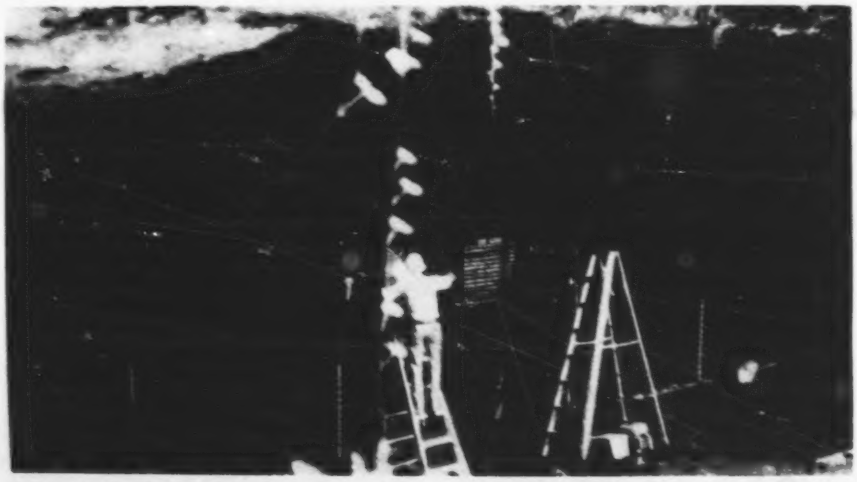
The most important recovery action called for by the Gray Bat Recovery Plan is the acquisition and protection of major gray bat caves. The immediate objective would be to reduce human disturbance in occupied caves. Protecting caves may require sign-posting, gating, fencing, and surveillance by enforcement agents. The plan also calls for the control of habitat destruction, the development of public education programs, and continued research to investigate the effects of environmental disturbance.

Implementation of the recovery plan will be initiated by the Service's Twin Cities Regional Director. Further information on the gray bat recovery effort can be obtained by contacting the Regional Director (see page 2 for address).

Red Wolf

Very little detail regarding the life history of the red wolf *(Canis rufus)* is known since no significant studies were made when viable wild populations still existed. The species was first described by the explorer Bartram in 1791 and is thought to have consisted of three subspecies. Recent findings indicate that the only extant subspecies, *C. r. gregoryi*, once occurring from eastern Texas to eastern Mississippi, no longer survives in the wild in the pure form.

The initial decline of the species is


U.S. Fish and Wildlife Service Photo

A standard 6-foot cyclone fence was erected across the only entrance of Cave Springs Cave on Wheeler National Wildlife Refuge, Decatur, Alabama, to restrict people from entering this major summer cave for the gray bat. Since this picture was taken, more barbed wire has been stretched across the top of the fence, providing an additional deterrent to intruders.

believed to have been caused by increases in human population, changes in land use during the early 1900's, and predator control activities. As the species declined, coyotes rapidly moved into western portions of the red wolf's range. Reproductive isolation between surviving red wolf populations and the coyote broke down and led to the establishment of hybrids which invaded the final range of the red wolf in southeast Texas and southwest Louisiana.

The red wolf was listed as Endangered in 1967, and a limited Red Wolf Recovery Program was established that same year. In 1973, after passage of the Endangered Species Act, the species was selected for priority treatment, and an expanded program to save the species was initiated by the Service in cooperation with the Louisiana Wildlife and Fisheries Commission and the Texas Parks and Wildlife Department. Early program findings confirmed that the species was confronted by habitat loss, loss of young to parasites, persecution by people, and an irreversible dilution of the gene pool by invading coyotes and hybrids.

By 1975, it was concluded that it was no longer possible to preserve the red wolf gene pool in the wild. The objectives of the program then became to locate and capture as many pure members of the species as possible, preserve them in captivity, and explore the possibility of reestablishing the species in areas of its historic range. Because of hybridization and the resultant sympatric occurrence of specimens ranging in appearance from coyotelike to wolflike, the Red Wolf Recovery Program has had to be quite selective in choosing individuals that represent the red wolf subspecies *C. r. gregoryi*. Selections have been made using established minimum standards.

A captive breeding program for the red wolf had already been established in 1973 through the Metropolitan Park Board of Tacoma at the Point Defiance Zoological Garden in Tacoma, Washington. The objectives of this program, which is part of the overall recovery program, are to certify the genetic purity of wild-caught wolves, increase the number of genetically pure wolves in captivity, and maintain a red wolf gene pool for restablishment of the species in the wild and/or distribution to selected zoological gardens.

The red wolf captive breeding program has produced pups each spring since 1977. As of July 1982, the program was maintaining 9 wild caught wolves and 45 captive-born young, varying in age from 3 months to 5 years. Although the majority of the animals remain at the program center in Tacoma, a few individuals have been distributed to other cooperating facilities.

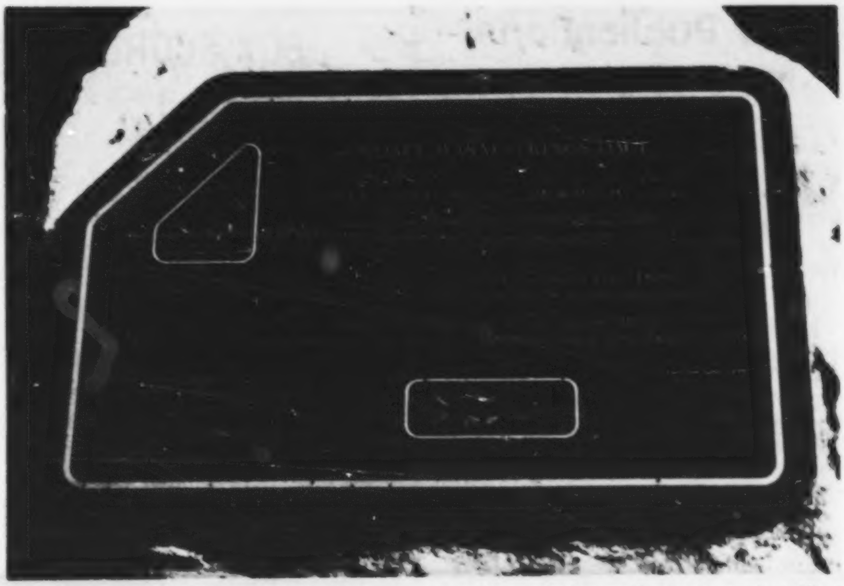


Photo by J. G. Coyners

The sign shown above is erected near the Kendall Warm Springs and outflow stream, alerting passers-by to the uniqueness of the Kendall dace habitat.

Mated pairs of adult wild-caught red wolves were experimentally released on Bulls Island in the Cape Romain National Wildlife Refuge near Charleston, South Carolina in the late 1970's. Results of this effort indicate that it is possible to reestablish adult wild caught red wolves in selected habitats in the wild. Limited experiments with wild-caught but captive reared pups in Texas also indicate that the establishment of captive-reared specimens in the wild is possible. A proposal for experimentally establishing the species in the wild was completed in early 1981 and is currently being administratively reviewed.

The ultimate goal of the Red Wolf Recovery Plan is to return the species to nonendangered status. Such a goal may be unattainable as it would require the establishment of viable self-sustaining populations throughout a major portion of the species' former range. At this time information is insufficient to determine whether viable self-sustaining populations can be established outside of strictly controlled areas.

The Red Wolf Recovery Plan essentially authorizes the actions already being executed by the Red Wolf Recovery Program. Further information on the recovery effort can be obtained by contacting the Atlanta Regional Director (see page two for address).

Kendall Warm Springs Dace

The Kendall Warm Springs dace *(Rhinichthys osculus thermalis)* inhabits the Kendall Warm Springs and its outflow. The habitat, which is about 300 meters long, is located on the east side of the Green River in Sublette County, Wyoming, in Bridger-Teton National Forest.

The Kendall dace, which was listed as Endangered in 1970, is the only fish inhabiting the springs. The spring water originates at near 29.4°C (85°F) and drops in temperature at the outfall to about 26.6°C (78°F) in the winter.

Dace adults range from 23 mm (0.9 in.) to 54 mm (2.1 in.) in size and prefer mainstream eddies and pools. Breeding males are often a bright purple color, but the females are typically dull olive green.

The origin of the dace is attributed to its isolation behind a travertine barrier formed at the confluence of the springs flow and the Green River. This separation provides a unique and isolated habitat, which is believed to have allowed the Kendall dace to evolve from the speckled dace (*Rhinichthys osculus yarrowi)* which occurs in the river. Additional study, however, needs to be done to clarify the relationship of the two subspecies.

Different types of activities have affected the integrity of the Kendall Warm Springs Creek for years. Livestock use has often been heavy because the springs are located along an old cattle drive. Grazing and trampling have affected both the stream and the plant life in and around the spring flowage. In 1969, the U.S. Forest Service enclosed 160 acres surrounding three sides of the spring to protect it from further impact.

Man's use of the spring to bathe and wash clothing has caused one of the most potentially harmful impacts to the aquatic community. Invertebrate samplings taken around 1975 suggested that the use of soaps and detergents had depressed the aquatic community.

Continued on page 8 .

New Publications

A New Service publication, "Wolf Depredation on Livestock in Minnesota," by Steven H. Fritts (Resource Publication 145, February 1982) is now available free of charge. Single copies may be requested from the U.S. Fish and Wildlife Service, North Central Forest Experiment Station, 1992 Folwell Avenue, St. Paul, Minnesota 55108.

1981 Potentialla robbinsiana *Educational Program and Hiker Survey* by Dorothy T. Taylor, Research Department of the Appalachian Mountain Club is now available for $2.50. Write Dorothy T. Taylor, Appalachian Mountain Club, Pinkham Notch Camp, Gorham, New Hampshire 03581 to purchase a copy.

A limited quantity of the "Proceedings of the U.S. Strategy Conference on Biological Diversity, November 16–18, 1981," is available from the Service. To request a single copy, please write the Director (OES), U.S. Fish & Wildlife Service, 18th and C Streets, N.W., Washington, D.C. 20240.

A cumulative index of the *Endangered Species Technical Bulletin* (July 1976–December 1981) is now available. Copies may be requested by writing the Office of Endangered Species, U.S. Fish and Wildlife Service, 18th and C Streets, N.W., Washington, D.C. 20240.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	ENDANGERED U.S. & Foreign	ENDANGERED Foreign Only	THREATENED U.S. Only	THREATENED U.S. & Foreign	THREATENED Foreign Only	SPECIES* TOTAL
Mammals	15	18	223	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Claims	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	52	2	0	8	1	2	65
TOTAL	194	44	444	46	7	24	759

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 9 animals
7 plants

Number of Critical Habitats listed: 52
Numberd of Recovery Teams appointed: 69
Number of Recovery Plans approved: 57
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

July 31, 1982

RECOVERY PLAN NEWS

Continued from page 7

To protect against this, the Forest Service closed the waters to bathing or wading and prohibited the use of soaps, detergents, or bleaches. A barrier was erected to prevent vehicles from driving into the springs.

For many years the Kendall dace was commonly used as fish bait. However, in the early 1960's the Wyoming Game and Fish Department stopped issuing permits to seine or trap the dace.

A road which was built in 1934 and is still the main transportation route for access into the upper Green River and the northern end of the Bridger Wilderness, impacts the Kendall dace habitat at one point where about 25 feet of the stream was replaced by culverts. Culverts may prevent upstream movement of the dace, isolating the upper half of the population.

The objective of the Kendall Warm Springs Recovery Plan is to recover the species through maintenance of current population levels and protection of the existing habitat. The plan also calls for additional taxonomic studies and habitat related research.

Implementation of the recovery plan will be initiated by the Service's Denver Regional Director and through the Denver Regional Endangered Species Staff. Further information on the Kendall Warm Springs dace recovery effort can be obtained by contacting the Regional Director (see page 2 for address).

Copies of all three recovery plans will be available in four to six months from The Fish and Wildlife Reference Service, Denver Public Library, 3840 York Street, Denver, Colorado 80205.

August 1982 Vol. VII No. 8

ENDANGERED SPECIES
Technical Bulletin
Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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September 1982 Vol. VII No. 9

ENDANGERED SPECIES

Technical Bulletin

Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

Eastern States Orchid Listed as Endangered

The small whorled pogonia (*Isotria medeoloides*), which numbers fewer than 500 individual plants in 10 states in the eastern United States and Canada, was listed by the Service as Endangered (F.R. 9/10/82). The continued existence of this rare orchid is endangered by taking of the plants and loss of habitat.

The species was named in 1814 and was known historically to occur in 48 counties in 16 eastern States and Canada. Today it is known to occur in 15 counties in 10 different States (Illinois, Maine, Michigan, New Hampshire, New Jersey, North Carolina, Pennsylvania, Rhode Island, South Carolina, Virginia) and one county in Ontario, Canada. Two of the 17 known sites are located on U.S. Forest Service land; the remainder are on privately owned land. Over 70 percent of the known plants are in Maine.

Critical Habitat has not been determined for *Isotria medeoloides* on the basis that the disclosure of specific localities would further endanger the orchid's continued existence, making it vulnerable to taking for noncommercial purposes. This fear is not unfounded—today, there are nearly as many, if not more, dried specimens of the species in herbaria than are known to exist in the wild.

Many former localities, some dating back to the late 1800's, have been inadvertantly lost due to habitat alteration. Based on herbaria label data and recent field checks of these sites, shopping malls, housing developments, and golf courses now mark the localities of historical populations. Conservation programs for the species, therefore, must be concerned with the availability of information on specific sites, so that neither inadvertant nor deliberate destruction occurs.

The plant can be found in a variety of forest types but is most often associated with relatively open areas in deciduous hardwoods. The orchid produces one or two yellowish-green flowers (from mid-May in the south to mid-June in the north) above a whorl of five or six light green, elliptic, somewhat pointed leaves. The short sepals are up to 2.5 cm long and help distinguish the species from the other member of the genus, *Isotria verticillata*, which is more common and has longer sepals. At maturity the plants are 9.5–25 cm tall.

Isotria medeoloides was originally proposed for listing on June 16, 1976, but was subsequently withdrawn in 1979 in accordance with the listing deadline imposed by the 1978 Amendments to the Endangered Species Act. The Service reproposed the species on September 11, 1980, basing its proposal on sufficient new information which indicated that it is in danger of extinction.

A total of 38 comments were received in response to the reproposal, including letters from the Governors of 15 States. All these interested parties and Governors supported the proposal to list *Isotria medeoloides* as Endangered.

The U.S. Forest Service supported listing the species throughout its historical range, citing no significant impact of listing on the 2¼ acres of National Forest areas in which the species occurs. Comments received from the Governor of Michigan indicated that the Michigan Nature Association currently owns the land on which the small whorled pogonia occurs in that State. The land was purchased several years ago solely for the purpose of protecting this rare orchid population.

The species is officially listed as an endangered species by State law in Michigan, North Carolina, and Massachusetts, and in the Province of Ontario, and the Government of Canada. Official listing under the 1973 Act, as amended, will provide a means by which various conservation and recovery actions can be implemented to insure the continued existence of this plant throughout its range. Michigan, Connecticut, Rhode Island, North Carolina, and South Carolina, all States in the species' range, have entered into formal agreements for the protection and conservation of plants as provided by Section 6(c)(2) of the Act. About 50 individuals of *Isotria medeoldides* could be covered by the agreements.

The U.S. named this species on a provisional list for the Annex to the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere during a conference held in Mar del Plata, Argentina, October 1965. The species was included on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) at the original plenipotentiary conference in Washington, D.C. in February and March 1973.

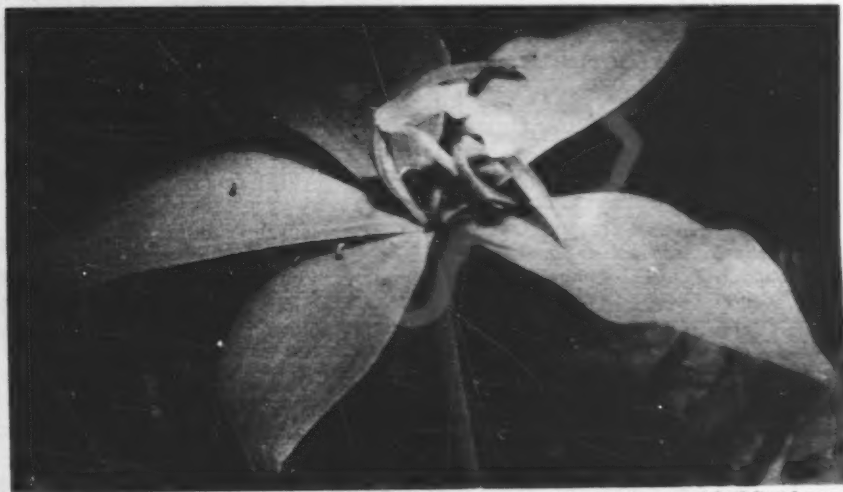

Photo by Irene Stuckey

*This rare orchid (*Isotria medeoloides*) is endangered by taking and habitat loss.*

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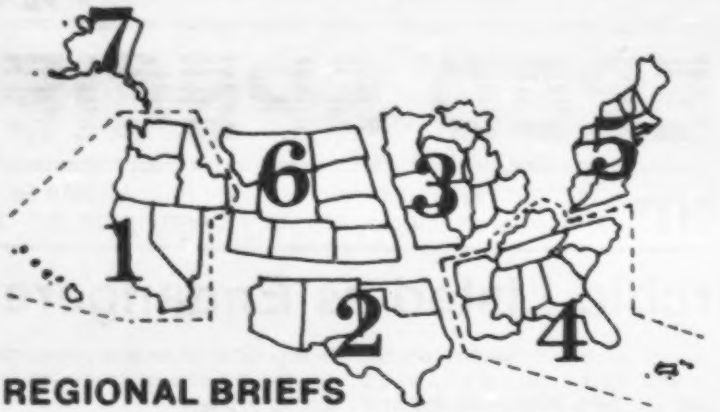

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of August:

Region 1—Three peregrine falcon *(Falco peregrinus)* chicks, bred in captivity at the Santa Cruz Predatory Bird Research Group Lab, were transported to the Columbia River Gorge on the Washington side and placed in an artificial nest structure (hack box) near a historic eyrie as part of a reintroduction effort. The project is being funded by the Service, administered by the Washington Department of Game, and carried out by personnel of the Santa Cruz facilities. This is the second hacking attempt this year within the Olympia Area; the first was in Oregon (see June 1982 BULLETIN). It is hoped that these birds will survive and eventually establish territories in the Columbia River Gorge.

The peregrine falcon, as a breeding species, has been extirpated in Idaho for about a decade. To help the reestablishment of a breeding population in that State, the Service cooperated in a reintroduction project with the Peregrine Fund West (Fort Collins, Colorado), the Idaho Department of Fish and Game, and two private contributors (the Simplot and Boise Cascade Corporations). Two release sites were established in Idaho in the summer of 1982. A total of eight peregrine falcons were successfully released and fledged from these sites. This provides optimism for the future of the peregrine falcon recovery program in Idaho. A minimum of 90 birds will be released in the State during the next 5 to 7 years.

Forty-nine active peregrine falcon pairs have been monitored for reproductive success in California, and 15 sites were manipulated to improve reproductive success. Sixty young fledged from these wild nests for an average of 1.2 young fledged per active pair, although 14 of the sites failed to fledge young. Four young peregrines were cross-fostered to two pairs of non-listed prairie falcons *(Falco mexicanus)*, and 12 young were released at four hack sites. This resulted in 76 young peregrines added to the California wild population in 1982. Almost all young were banded prior to fledging.

An agency review draft of the Macfarlane's Four O'Clock Recovery Plan has been completed. This plant is a member of the Nyctaginaceae or "four o'clock" family. In Latin, its generic name, *Mirabilis* means wondrous. This species, *M. macfarlanei*, was named for Ed Macfarlane, a boatman on the Snake River who pointed out the plant to Rollins and Constance in 1936. These botanists described the species later that year. In 1947, Davis, an Idaho botanist, discovered it on the Salmon River in Idaho. Later fruitless searches for *Mirabilis* led botanists to consider it possibly extinct. It wasn't until 1978 that a small colony was noted in Hell's Canyon Recreation Area in Oregon. It has since been found in three additional localities, including what is thought to be the type locality. The most recent discovery, the Long Gulch site in Idaho, consists of several hundred plants. In October, 1979, *Mirabilis macfarlanei* was listed as an Endangered species.

The Service is contracting a status survey for three endemic shrews: the

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Captured Chick Rekindles Hope for Condor Program

A California condor chick *(Gymnogyps californianus)*, the first bird to be successfully taken from the wild for the Cooperative California Condor Conservation Program, is doing well at its new home, the San Diego Wild Animal Park. The bird will eventually be used in a captive breeding program designed to help recover the severely Endangered species.

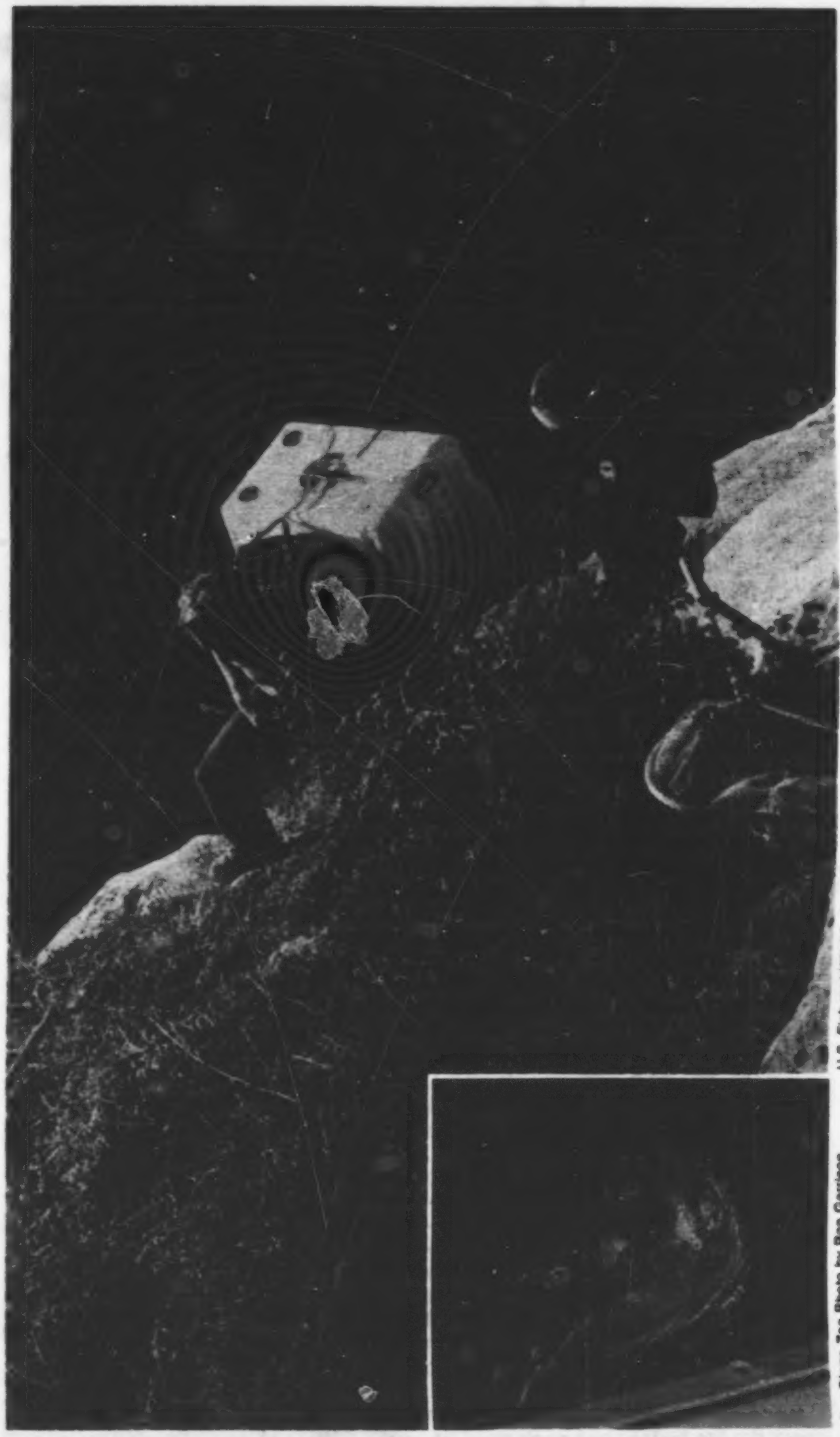
Members of the condor research team, which is separate from the advisory recovery team, captured the 14-pound chick in the mountains near Ventura, California, on August 13, 1982. It has taken food readily since it was placed (the same day) in the Wild Animal Park, and it now weighs well over 16 pounds. Blood samples will be taken later on to determine the bird's sex. Team members described the chick's capture as "probably the most important event in the 2½ years of the condor recovery program."

No condors have been trapped since the program began in December 1979. Because of the expected slow pace in trapping condors for the captive breeding program, more consideration has been given by the team in recent months to alternate ways of forming a small captive breeding population. One option—now actually initiated with the team's recent success—is the taking of nestlings from wild pairs.

This procedure will have less impact on the wild population than would the taking of adult or free-flying, older, immature condors. Field observations indicate that a pair that loses its egg, and possibly its chick, is very likely to relay within a year. Usually, parent condors care for a chick through a winter and spring following its fledging and wait 2 years to renest.

Therefore, as a second alternative to trapping, the team hopes to remove an egg laid by a wild pair and incubate it at the San Diego Zoo. Once hatched, the egg would provide a bird to eventually become part of a captive breeding population. Meanwhile, the wild pair should recycle (lay a second egg), and still have the potential for producing a chick the same year.

Double clutching of Andean condors *(Vultur gryphus)*, a species that is also Endangered, has already been successfully achieved at the San Diego Zoo. Also, the recent success of one wild pair of California condors in recycling (laying a second egg shortly following the loss of a first egg) provides verification for this behavior in the California condor (see the March and May 1982 issues of the BULLETIN for the story).



U.S. Fish and Wildlife Service Photo by Helen Snyder

San Diego Zoo Photo by Ron Garrison

Noel Snyder, field biologist for the Service's Condor Research Center, carries a travel case containing a California condor chick down from the Ventura-area nesting site where the condor was captured on Friday, August 13. Dr. Phil Ensley, veterinarian for the Zoological Society of San Diego, accompanied Snyder for the capture operation. The condor (inset) was taken to the San Diego Wild Animal Park to begin a captive breeding program for this critically Endangered species.

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HAWAIIAN FEATURE

Brighter Prospects for the 'Io Seen in Co-op Unit Study

Third in a series on Endangered species projects being conducted by the Service's Cooperative Research Units Program.

* * * * *

The 'io, or Hawaiian hawk *(Buteo solitarius)*, was once considered a guardian spirit, watching over and protecting some of the old families of Hawaii. In later times, however, it became the hawk that needed protection when habitat alteration, illegal shooting, and introductions of exotic species jeopardized its future. Fortunately, recent field studies conducted under the Cooperative Research Units Program indicate that the status of the hawk now appears relatively stable.

From March 1980 through June 1983, Curtice R. Griffin, a University of Missouri doctoral candidate, is the primary field investigator for a Missouri Cooperative Wildlife Research Unit project on the life history and ecology of 'io, the first major study of this species. Griffin has had wide experience with raptors in various parts of the continental United States, including a study of wintering bald eagles *(Haliaeetus leucocephalus)* at Swan Lake National Wildlife Refuge (Missouri). He has also worked with the Endangered Galapagos hawk *(Buteo galapagoensis)* which, like the 'io, is endemic to an island ecosystem. The study is being done under a cooperative agreement with the Endangered Species Ecology Section of the Patuxent Wildlife Research Center.

Assisting Griffin in the field studies are Peter W. C. Paton and Sheila J. Doyle. The leader of the Service's Missouri wildlife co-op unit, Dr. Thomas S. Baskett, serves as co-investigator. Among other Service representatives participating in the project are Dr. J. Michael Scott, of the Mauna Loa Field Research Station, and Larry F. Pank, former leader of the Hawaii Wildlife Damage Research Station. The Institute of Pacific Islands Forestry (U.S. Forest Service) and the Hawaii Field Research Station (National Park Service) are also cooperators.

Since comparatively little was known about the life history and ecology of 'io, the project has been addressing a variety of topics, including breeding chronology, reproductive success, food sources (and their relation to the possible effects of environmental pollutants), home range sizes (as a possible aid in estimating population densities), and the impacts of predation and human disturbance.

The 'io is small buteo endemic to the Island of Hawaii, and is the sole native hawk in the archipelago. Widely distributed on the island, the bird is locally common on the slopes of Mauna Loa and Mauna Kea. Although the distribution of the hawk may not have changed significantly since the 1890's, it has suffered a steep decline in numbers. Estimates made as recently as 1968 gave the total population number as in the low hundreds. The 'io was listed as Endangered in 1967.

Mature 'io are found in light and dark phases, as shown by this pair at their nest in a native koa (Acacia koa) *tree. The two color phases do not indicate either age or sex.*

by Curtice R. Griffin/Missouri Wildlife Co-op Unit

Nesting Observations

Information on the hawk's breeding biology and nesting behavior was gathered from April through September during the 1980–1981 seasons through the use of time-lapse cameras at some nests and extensive observations from blinds at other locations. Despite some technical problems with the cameras, data were gathered on the young hawks' nestling and early post-fledgling stages.

Although clearing of forests for agriculture and construction over the years has reduced the number of potential nesting areas, the hawks occasionally nest in relatively open areas (such as pastures and along agricultural fields) if some trees remain. The researchers emphasize, however, that although the hawk shows a remarkable ability to use highly modified habitats, the extensive destruction of native forests has undoubtedly reduced the quality of habitat available, resulting in lower densities than in earlier times.

Nests are built at heights ranging from 60 feet to as low as 12 feet. The 'io uses the same nest each year, adding to it each season until it can become as large as 40 inches across and 30 inches deep. The nests observed in the study were found in a number of different species of trees, and almost a third were built on top of large native birdnest ferns *(Asplenium nidus)*, which provide a stable platform for nest construction.

The nesting site tenacity of the 'io is illustrated by an incident that occurred in June 1980, when a hawk nest blew down leaving a downy chick homeless. Griffin's wife, Bridget, filled in as a foster parent for 2 days while Griffin and Paton worked at getting the chick back to its parents. Their first attempt at constructing a substitute nest in a tree near the old site failed because the female would not fly to the new nest. But when they placed a new nest at the site of the old nest, the chick was immediately accepted and later successfully fledged.

The hawks observed during the field studies nested from March through September, and most laid their eggs in late April and early May. Although the fragmentary early literature gave the aver-

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ACTION ON 3 PLANTS

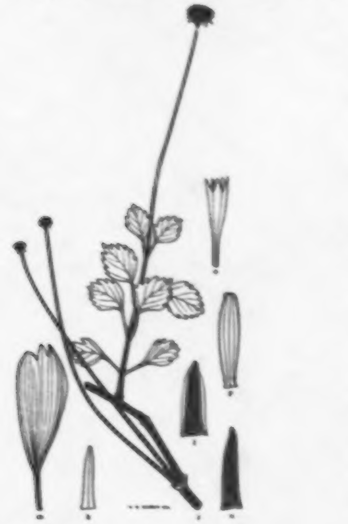
Two Hawaiian Plants Proposed as Endangered

Two plant species, the cuneate bidens (*Bidens cuneata*) and the Diamond Head schiedea (*Schiedea adamantis*), which occur only on Diamond Head, O'ahu, Hawai'i, have been proposed by the Service as Endangered (F.R. 8/23/82). Both plants are jeopardized by habitat deterioration associated with hiking trails, encroachment by exotic plant species, a significant fire hazard, and plans to develop the area for recreation, along with their very small numbers and restricted distribution.

Background

B. cuneata (an herb) and *S. adamantis* (a small shrub) are known from a single small population each, restricted to the rim of Diamond Head Crater. The total known number of mature individuals for each species was recently estimated at 10 and 78, respectively. Because both plant colonies are located immediately adjacent to a trail used heavily by hikers, habitat deterioration resulting from this activity is of particular concern. Soil compaction, promotion of erosion through loss of vegetative cover, and possibly inadvertent trampling of plants due to passage of hikers have resulted from continued use of the crater rim path.

Human impacts on the sites are expected to intensify if the State fulfills its plans to develop Diamond Head into a public park and recreation area. Additional public use also will probably increase the hazard of fire, which is already a significant threat to the plants because of the dry conditions in the area during part of the year. Because of the extremely small numbers of remaining individuals and their very limited distribution, a single fire could result in the species' extinction. Another constant threat to both taxa, as well as much of Hawai'i's other native flora, is competition by aggressive exotic vegetation.



Bidens cuneata

Reprinted from NEW ILLUSTRATED FLORA OF THE HAWAIIAN ISLANDS, Otto Degener, January 15, 1940.

Critical Habitat for the two species was not proposed at this time. The extremely low number of individuals, the restricted range, and the proximity of both populations to a heavily used hiking trail would make the plants highly vulnerable to inadvertent or deliberate damage by curiosity seekers and vandals if the exact locations of the populations were publicized. However, under Section 7 of the Endangered Species Act, no Federal agency can fund, authorize, or carry out any actions likely to jeopardize the continued existence of the plant. The prohibitions on import/export and trade would also apply.

Under Hawaii law, listing by the Federal Government would bring the species under additional protection by the State, which prohibits taking of listed plants and imposes restrictions on State agencies similar to those included in Section 7 of the Act.

Both of the proposed species are of great scientific interest because they are members of families which have undergone much evolutionary diversification in Hawaii, and they belong to genera that would make excellent models for the study of evolution and adaptive radiation in insular floras. The Hawaiian species of *Bidens* have been, and are still being, used for such studies. Additionally, *Schiedea*, an endemic genus of the carnation family, has an unusual floral structure and is of scientific interest due to its reproductive system.

Public Comment Requested

Comments on the listing proposal are requested from all interested persons, organizations, and agencies, and should be received by the Pacific Islands Administrator (U.S. Fish and Wildlife Service, P.O. Box 50167, Honolulu, Hawai'i 96850) by November 22, 1982.

'Ewa Plains 'Akoko Listed as Endangered

The 'Ewa Plains 'akoko (*Euphorbia skottsbergii* var. *kalaeloana*), a native plant found only near Barbers Point, O'ahu, Hawai'i, has been listed by the Service as an Endangered species (F.R. 8/24/82). Extensive development of its habitat and an invasion of aggressive exotic plants are the primary threats to the 'akoko.

Background

The small shrub is one of four plant taxa originally described as endemic to the 'Ewa Plains on the southwestern corner of Oahu. Another variety of the same species (*E. s.* var. *skottsbergii*) formerly was found nearer the shoreline in the same general area, but has not been seen since 1932 and is presumed extinct. A third plant, a species of grass, is presumed extinct, and the fourth species, another shrub, is considered vulnerable. These plants have adapted to a habitat consisting of a low coralline plain covered with karst features such as sinkholes, irregular ridges, and blocky rock masses. It lies in the rain shadow of the Ko'olau Mountains and receives less that 20 inches of precipitation annually.

Plant habitat on the 'Ewa Plains has been subject to varying degrees of disturbance since Polynesian settlement of the islands, with most of the develop-

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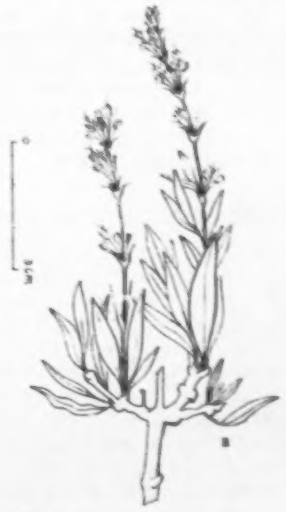

Schiedea adamantis

Reprinted from PACIFIC SCIENCE, Vol. XXIV, No. 2, April, 1970.

HAWK

Continued from page 4

age clutch size as two to three eggs, the researchers found that only one egg was produced at the nests where egg numbers could be determined. Fledging success rates for nesting attempts were well over 50 percent in both years. Most of the incubation, which lasted about 38 days, was done by the female while the males secured the food. The females' tolerance for the male at the nest then declined markedly during the nestling stage.

The young birds usually fledged in late July and August, at about 8 to 9 weeks (almost twice as long as the nesting period of similarly sized buteos in temperate regions), and they remained in the nest area for several months to over a year. As a result of this careful parental care, and the fact that these insular raptors are nonmigratory, the survival of fledglings appears to be substantially higher than that of most mainland raptors.

Feeding Analysis

The 'io preys on a wide variety of native species, and takes many that have been introduced—accidentally and on purpose—on the Big Island. Among the organisms upon which the hawk feeds are mice, rats, mongooses, insects, mynah and rice birds, and even crayfish. Contamination of the food chain by DDT and other long-lived pesticides, which was a major factor in the decline of such mainland raptors as the bald eagle and peregrine falcon *(Falco peregrinus)*, does not appear to have occurred for the 'io. Several unhatched eggs and a dead chick were salvaged during the study, and were sent to the Service's Patuxent Wildlife Research Center for analyses; no traces of organochlorides and only very low levels of heavy metals were found. (A necropsy of the chick indicated that it had died of internal injuries after falling from its nest.)

Radio Telemetry

An important part of the project involved radio-tracking 'io throughout both their breeding and nonbreeding seasons to gather information on home range size. The telemetry data are still being analyzed to determine the bird's foraging behavior, patterns of habitat use, and population densities. During the study, 3 juvenile and 11 adult hawks were radio-tagged, and their movements tracked by ground triangulation. The 3 young birds were monitored for more than 7 months each before the units failed or were removed by the birds, and much information was gathered on post-fledgling movements. The tracking success rate was lower with the 11 units fitted on adult hawks, although some did operate normally and contributed valuable data. The high removal and failure rate of 9-gram tail-mounted units in 1980 was greatly reduced in 1981 when the researchers switched to 10-gram back-mounted units.

The Future

Although the data collected during the field observation phase of the study are still being analyzed, it is apparent that the 'io is more numerous than earlier believed, and that the population may now be stable. The breeding strategy of the bird is well suited to the tropical climate of Hawaii. Its small clutch size, along with its long incubation and nestling periods, contrast sharply with hawks in temperate zones. Productivity is good and, other than humans, there are no serious predators of 'io and their young.

Under a separate contract, Griffin is preparing a Hawaiian Hawk Recovery Plan, which will provide a detailed guide for research and management for recovery of the species. Among the continuing threats to the hawk that will be addressed in the plan are habitat modification, which effects population densities, and human disturbance. The 'io is quite tame away from its nest, and can be easily approached, making it particularly vulnerable to rock throwing and illegal shooting. Excessive human presence at the nest can cause the hawk to abandon the site.

Compared to many native Hawaiian forest birds, the future of the 'io looks brighter if high quality native habitat is conserved, human disturbance is reduced, and the public is better educated to the value of Hawaii's irreplaceable natural heritage.

by Peter W.C. Paton/Missouri Wildlife Co-op Unit

Curtice Griffin inspecting an 'io nest high in a native ohi'a lehua (Metrosideros *sp.)* *tree on a ranch adjacent to Hawaii Volcanoes National Park.*

'AKOKO

Continued from page 5

ment occurring in recent decades. The area now supports a naval air station, sugar plantation, and industrial park, as well as some residential development, limestone quarrying, and livestock operations. Only about 12 percent of the plains remain undeveloped. Future plans include the expansion of the industrial park and completion of a deep-draft harbor. Due to habitat disturbance and past introductions of exotic plants, the 'Ewa area supports predominantly non-native vegetation dominated by kiawe (*Prosopis*) and koa haole (*Leucaena*), with only remnant populations of native species.

Regulatory History

The 'Ewa Plains 'akoko was first proposed by the Service as Endangered in 1976, along with about 1,700 other plants identified in a petition prepared by the Smithsonian Institution. In accordance with the listing deadline imposed by the 1978 Amendments to the Endangered Species Act, the proposal was withdrawn in December 1979. The 'akoko was reproposed as Endangered on September 2, 1980, based in part on new information provided under contract by the University of Hawai'i.

All those responding to the proposal, with the exception of the Governor of Hawai'i and the Smithsonian Institution (the latter provided no additional comments), indicated that the status of the plant was such as to warrant listing as Endangered. Among the agencies generally supporting the proposal were the U.S. Army Corps of Engineers, the U.S. Department of the Navy, and the U.S. Forest Service; a number of private organizations and individuals also responded favorably.

The Governor asserted that efforts by the Corps of Engineers and a private developer involved at Barbers Point would insure the plant's survival through the proposed establishment of sanctuaries and of transplanted populations within the 'Ewa Plains. He also opposed the listing on the grounds that it might effect construction of the deep-draft harbor at Barbers Point. The Service responded that the results of existing conservation measures are not yet conclusive, that recent transplantation experiments with the 'akoko have not been successful, and that the available information indicates a pattern of long-term decline and significant losses in the plant. Further, current data make it probable that, while some plants would be lost during harbor construction and associated development, the species as a whole would not be subjected to further significant jeopardy by the project if the long-range planning incorporates conservation measures. Recently, another population of the 'akoko was found on Federal land in the area. Because this discovery will lessen the impact of harbor construction on the species overall, little likelihood is foreseen of an irreconcilable conflict between the deep-draft harbor and Federal management of the 'akoko.

A determination of Critical Habitat for the 'akoko was found by the Service to be neither biologically feasible or of benefit to the plant at this time. Because the 'Ewa Plains environment is heavily disturbed by development and dominated by exotic vegetation, and because the precise habitat needs of the plant are not known, no area can be identified upon which are found physical or biological features essential to the conservation of the species. This does not preclude a Critical Habitat determination in the future if further studies warrant.

Effects of the Rule

As an Endangered species, the 'Ewa Plains 'akoko may not be imported or exported by anyone subject to the jurisdiction of the United States, or be entered into interstate or international trade. Certain exceptions apply to authorized agents of the Service and State conservation agencies. Permits may also be granted for approved conservation purposes.

The rule also requires that Federal agencies insure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species. This provision allows the U.S. Army Corps of Engineers and the U.S. Naval Air Station at Barbers Point to consult formally with the Service concerning their activities in the area as they might affect the 'akoko, so that plans can be developed to insure the species' survival. Such plans may include the establishment of new populations of the taxon in protected areas within the 'Ewa Plain as well as protection of existing populations on Federal property.

Colorado Plant Given Endangered Status

Phacelia formosula (North Park phacelia), which is known only from two populations 5 miles apart in Jackson County, Colorado, has been listed by the Service as Endangered (F.R. 9/1/82). Threats to the species include motorcycle use of the habitat, potential oil and gas or coal exploration, and damage from cattle trampling.

Phacelia formosula was originally proposed for listing on June 16, 1976, but was subsequently withdrawn in 1979 in accordance with the listing deadline imposed by the 1978 Amendments to the Endangered Species Act. The Service reproposed the species on September 2, 1980, based on sufficient new information which indicated that it is in danger of extinction.

Background

The North Park phacelia was first discovered in 1918 and published as a new species in 1919. Modern work on the species did not begin until 1969, when Dr. Duane Atwood rediscovered the historical (type) locale and published an analysis of the species. This historical population, located on a sandstone bluff above the Michigan River, has been severely disturbed by heavy motorcycle use and some trampling by cattle. This population has fluctuated from 22 plants in 1979 to, perhaps, a maximum of 200 in the very favorable season of 1981.

A second population, found in 1981, consists of five sites in an 8-mile stretch along the North Platte River. The major concentration of plants (around 2,500 individuals) was at one of these sites, while the other four sites consisted of only 3 to 15 plants each. The North Platte site hosting the major concentration of plants is within a "Known Recoverable Coal Resource Area," has been partially leased for oil and natural gas

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Photo by Karen Wiley-Eberle

Phacelia formosula *is known only from two populations in Jackson County, Colorado.*

Reclassification Proposed for Texas Alligators

The American alligator (*Alligator mississippiensis*) in Texas has been proposed for reclassiciation from Endangered and Threatened to Threatened due to Similarity of Appearance (F.R. 9/13/82). If the proposal becomes final, it would constitute formal recognition by the Service of the large reptile's biological recovery within the State. Commercial take of Texas alligators, currently illegal, would then be authorized in accordance with a State management plan and the Service's special rules. The proposed rule would not affect the alligator in other parts of its range.

Background

The alligator was Federally listed as Endangered in 1967 after poaching and overhunting for its fashionable leather led to a decline in the species. (In 1969, the State of Texas closed alligator seasons.) Subsequent recovery of the alligator in some parts of its range under Federal and State protection has allowed the gradual reclassification in areas where it is most secure. Currently, the alligator is listed as Threatened due to Similarity of Appearance in Louisiana; Threatened in Florida and certain coastal areas of Texas, Georgia, and South Carolina; and Endangered throughout the remainder of its range in Texas, Georgia, South Carolina, North Carolina, Alabama, Mississippi, Arkansas, and Oklahoma.

Alligators in coastal Texas were reclassified to Threatened on January 10, 1977. Service data indicate that from 1977 to 1979, four national wildlife refuges along the Texas coast showed an increase in their alligator populations. Other data gathered by State, university, and private biologists also point to greater numbers through increased nesting and nesting success. According to the Texas Parks and Wildlife Department, nest densities appear to be near maximum and population growth may have reached optimum proportions. The overall situation for alligator habitat is considered good because much of the prime habitat is under State or Federal control and because water storage activities are increasing habitat availability.

The final rule, if approved, will change the status of all alligators in Texas from Endangered or Threatened to the special category of Threatened due to Similarity of Appearance. This classification, authorized under Section 4(e) of the Endangered Species Act, would remove Federal agency habitat conservation responsibilities under Section 7 and return primary management authority to the State.

Public Comments

All individuals, agencies, organizations, or other interested parties are invited to submit written comments on the reclassification proposal by November 12, 1982. Address comments to the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103.

COLORADO PLANT

Continued from page 7

exploration, and also is subject to cattle trampling.

Reproductive success of the historical population is reported to be very poor. Disturbance within any given year is potentially intensified because of the species' probable biennial life cycle. In the first year, it produces a basal rosette of leaves. The following year, it sends up a flowering stem, usually branched at the base, with violet flowers in several coiled branches. This second-year plant sets seed and dies.

Comments on the 1980 proposal all supported listing this species. Critical Habitat was not proposed, since publication and a public meeting on the plants' type location near a town would increase the risk of vandalism.

Priority for coal development within the species' habitat is low; the BLM has declared its portion of the site unsuitable for coal development. The potential for exploratory drilling is considered medium to low.

Effects of the Rule

Section 7(a) of the Endangered Species Act of 1973, as amended, requires Federal agencies to evaluate their actions with respect to potential impact on any listed species. Part of the North Park phacelia's habitat is managed by the Bureau of Land Management (BLM) and will, therefore, be covered by the provision. In addition, since the species is listed under the Act, certain other conservation authorities become available and protective measures may be undertaken for it. These could include the use of Federal and State funds for the species since Colorado has a plant cooperative agreement under Section 6(c)(2) of the Act.

Santa Barbara Song Sparrow Proposed for Delisting

The Service has proposed to remove the Santa Barbara song sparrow (*Melospiza melodia graminea*) from the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 8/9/82). This action is being taken because the species has become extinct.

The sparrow formerly occurred only on Santa Barbara Island, Los Angeles County, California—an island only 2.6 km^2 in size—where it was extremely abundant. Removal of native vegetation for farming and by introduced domestic goats and rabbits reduced the habitat for this species. Feral house cats probably became significant predators once dense vegetation was destroyed. Even so, the species was able to maintain high numbers on certain portions of the island until 1959 when a major fire destroyed much of its remaining habitat. The fire was so intense that two-thirds of the island was denuded down to the mineral soil.

In spite of regular visits to Santa Barbara Island by ornithologists in the years following the fires, including intensive surveys for the sparrow in 1974 and 1978, no individuals of this subspecies have been seen in over 20 years. The island is easily surveyed, so it is certain that the species has not been overlooked.

The bird was classified as Endangered in 1973, under the Endangered Species Act of 1973. No Critical Habitat was designated. This action will simply acknowledge the species' extinction and remove it from protection under the Act.

Public Comments

All individuals, agencies, organizations, or other interested parties are invited to submit written comments on the reclassification proposal by November 12, 1982. Address comments to the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103.

Interested persons and organizations are requested to submit comments to the Regional Director (ARD/FA) U.S. Fish and Wildlife Service, 700 N.E. Multnomah Street, Suit 500, Portland, Oregon 97232 (503/231-6131). All comments must be received by November 8, 1982.

CITES NEWS— August 1982

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director—Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S. The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

Export Guidelines, Proposed Bobcat Findings Published

The Service has announced its proposed findings on the export of bobcats (*Lynx rufus*) from this country, and its decisions on the guidelines used in making the findings (F.R. 8/20/82). Proposed guidelines were presented to the public for comment earlier (F.R. 4/5/82); a summary of these comments is also included in the August notice.

The Service proposed to approve export of bobcats harvested during the 1982–83 season in the following States on the grounds that the guidelines are expected to be met: Alabama, Arizona, Arkansas, California, Colorado, Georgia, Idaho, Kansas, Klamath Tribe, Louisiana, Maine, Massachusetts, Minnesota, Mississippi, Montana, Navajo Nation, Nebraska, Nevada, New Hampshire, New Mexico, New York, Oklahoma, Oregon, South Dakota, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.

The Service proposed not to grant general approval for exports of bobcats harvested in certain States that have received export approval in the past. Presently the Service lacks assurance that the guidelines will be met in these States: Florida, Michigan, Missouri, North Carolina, North Dakota, South Carolina, Tennessee, and Virginia.

The Service proposed these guidelines in order to comply with the ruling by the U.S. Court of Appeals for the District of Columbia (Defenders of Wildlife vs. Endangered Species Scientific Authority, 659 F. 2d 168 [1981]) that bobcat exports may not be permitted under CITES unless the Service's Scientific Authority findings were based on "reliable estimates of the bobcat population and data showing the total number of bobcats to be killed in each of the States involved." The proposed guidelines responded to a subsequent District Court decision which held that the Service's decision-making methodology for making findings for the 1981–1982 season did not comply with the Court of Appeals ruling (see February 1982 BULLETIN for details).

Comments on the Guidelines

The Service received comments and information on the guidelines from 24 State wildlife conservation agencies, the majority of which took issue with the Court of Appeals' evaluation of wildlife management techniques. In general, States indicated that they adequately regulate the harvest of bobcats on the basis of various types of information other than population estimates, which they contend have little practical value for management purposes because of their low statistical reliability and the high cost of research to generate them.

These remarks were supported by comments submitted by the International Association of Fish and Wildlife Agencies, the Wildlife Legislative Fund of America, and the National Alligator Association. Since the Court of Appeals ruling requires population estimates and information on harvest levels, however, the Service is unable to adopt these comments.

Several States commented on the proposal requirement of a numerical limit on harvest that would be deemed nondetrimental. They indicated that harvest limits can be set by adjusting the length and timing of harvest and by specifying harvest methods. They consider the establishment of a finite harvest number as neither feasible or necessary. Several States also commented, rejecting the requirement that a precise percentage of the population be established as a limit for harvest. The Service agrees that any such percentage is arbitrary and inappropriate in view of the low precision attainable for population estimates and the need to base harvest levels on each State's population research findings. Accordingly, the Service deleted this requirement from its proposed guidelines.

Comments submitted on behalf of Defenders of Wildlife and the Humane Society of the United States commended the Service for its proposed guidelines and stated that, in general, they meet concerns and requirements set out in the Court of Appeals decision. Both organizations, however, stated that the guidelines needed further clarification and detail. The Service has, in most cases, modified the guidelines to satisfy their suggestions. Comments on the proposed findings were accepted until September 20, 1982.

Forfeited Wildlife Products Sold

In September, the Service held the first Government sale of forfeited wildlife products. The sealed-bid auction was to dispose of African elephant ivory products, Appendix II reptile leather goods, and assorted items involved in Lacey Act violations. The items were on public display in a Federal Building in Brooklyn, New York, prior to the sale, which the General Services Administration conducted for the Service. Sealed bids were due before 11 a.m. on September 29, and winning bids will be awarded by October 8.

In 1978, through passage of the Fish and Wildlife Improvement Act, Congress authorized the Service to dispose of the forfeited wildlife. The Service published final regulations on methods of disposal in the April 23, 1982, *Federal Register*. The regulations limit the types of wildlife the Service may sell—the sale of migratory birds, bald and golden eagles, and species listed on Appendix I of CITES is prohibited. Endangered and Threatened species and marine mammal products may be sold only if the item or species may be lawfully traded in interstate commerce, such as American alligator products, African ivory, and authentic Alaskan Native articles of handicraft or clothing. The Service did not sell any item for which it is the sole source. Unsuccessful bidders at the auction can find the same or comparable items from other lawful sources.

The Service intends to hold similar sales in the future. For further information contact: Division of Law Enforcement, U.S. Fish and Wildlife Service, U.S. Department of Interior, Washington, D.C. 20240 (202/343-9242). Please refer to FWS-F-0130 when making inquiries.

Appendix II Species Findings Proposed

The Service has proposed export findings for certain CITES Appendix II species taken in the 1982–83 harvest season (F.R. 8/31/82). Species involved are the lynx (*Lynx canadensis*), river otter (*Lutra canadensis*), Alaskan gray wolf (*Canis lupus*), Alaskan brown bear (*Ursus arctos*), American alligator (*Alligator mississippiensis*), and American ginseng (*Panax quinquefolius*).

In a previous notice on this subject (F.R. 4/5/82), the Service invited comments on new proposed export guidelines, as well as information on the species listed above—including the bobcat (*Lynx rufus*). On the basis of the comments received, the Service concluded that the new proposed guidelines are inappropriate for lynx, otter, and alligator and has decided to use guidelines developed in 1977 for export of these species. New guidelines will be used only for the export of bobcats (see accompanying article).

Because of the Service's decision to use previously developed guidelines (for all involved species except bobcat), information needs, to be used in developing both Scientific Authority (SA) and Management Authority (MA) findings, have been reduced from those outlined in the April 1982 notice. Specifically, the Service has eliminated requests for population estimates, numbers of animals bought by dealers, number of licensed trappers, and prices paid to trappers for pelts. Required information is detailed in the August notice.

For ginseng, the Service is using the same guidelines as were used last year in determining if exports will not be detrimental to the survival of the species. Because the status of wild ginseng does not vary greatly from year to year within any given State, the Service proposed to issue findings valid for a 3-year period. The Service will continue to monitor the status of ginseng each year, maintaining the option to revise the findings at any time if new information shows a need to do so.

The Service proposed to approve exports of the following species harvested during the 1982–83 season for animals and the 1982 through 1984 seasons for ginseng in the following States, on the grounds that both SA and MA guidelines are expected to be met:

Lynx—Alaska, Idaho, Minnesota, Montana, and Washington.

River otter—Alabama, Alaska, Arkansas, Connecticut, Delaware, Florida, Georgia, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Montana, New Hampshire, New York, North Carolina, Oregon, South Carolina, Vermont, Virginia, Washington, and Wisconsin.

Alaskan gray wolf—Alaska.

Alaskan brown bear—Alaska.

American alligator—Florida and Louisiana.

American ginseng—Arkansas, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Minnesota, Missouri, North Caolina, Ohio, Tennessee, Vermont (artificially propagated ginseng only), Virginia, West Virginia, and Wisconsin.

Exports of CITES Appendix II animals or plants can only be authorized if the MA is satisfied that the species were not obtained in contravention of laws for their protection and if the SA advises that export will not be detrimental to the survival of the species. Tagging requirements for the 1982–83 season are detailed in the August notice.

Botswana to Host Fourth Regular CITES Meeting

The fourth regular meeting of the Conference of Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has been tentatively scheduled for April 19 to 30, 1983, in Gaborone, Botswana. A notice announcing a series of public meetings preparatory to the CITES meeting and seeking information and comments on the agenda was published by the Service (F.R. 8/5/82).

This is the first of a series of notices which together with public meetings provide the public an opportunity to participate in the development of the U.S. negotiating positions for the Botswana meeting. The Service will consider all comments and information received by October 31, 1982, concerning the provisional agenda. (Please consult the *Federal Register* for details of the proposed agenda.) The Service plans to publish a notice of proposed negotiating positions during the latter part of November 1982, to hold a public meeting on such positions around the middle of February 1983, and to publish a notice of negotiating positions around the beginning of April 1983.

Organizations and agencies wishing to send observers to the Botswana meeting are responsible for so informing the Secretariat. In the past, the Secretariat has required that such notice be given at least one month prior to the meeting. The Secretariat may be contacted at the following address: CITES Secretariat, Avenue du Mont-Blanc, CH 1196, Gland Switzerland, Telex: 22618 IUCN ch, Cable: IUCNATURE GLAND.

Persons wishing to be observers representing U.S. national nongovernmental agencies must also receive prior approval of tho Service. Such requests for approval should include evidence of technical qualification in protection, conservation, or management of wild fauna and flora. Requests should be sent to the Director, U.S. Fish and Wildlife Service, Federal Wildlife Permit Office, Washington, D.C. 20240.

World National Parks Congress 1982

"Protected Areas in a Changing World," will be the theme of the once-a-decade *World National Parks Congress* to be held in Bali, Indonesia, October 11–22, 1982. This congress will bring together 450 professionals involved in planning and managing protected areas to discuss the current state of their science, and to help design and promote an expanded role for protected areas in the process of social and economic development.

Hosted by the Government of Indonesia, the congress is sponsored by the International Union for the Conservation of Nature and Natural Resources (IUCN) and cosponsored by the United Nations Environment Programme (UNEP), Unesco, the Food and Agriculture Organization of the UN (FAO), the World Wildlife Fund (WWF), the U.S. National Park Service, and Parks Canada. The Congress will produce three state-of-the-art books in workshop sessions: *Managing Protected Areas in the Tropics; Managing Coastal and Marine Protected Areas;* and *Training Protected Area Personnel.* A proceedings volume will be produced.

The views of the congress participants regarding world governments' role in supporting social and economic development will be communicated to all governments of the world in the form of the Bali Declaration. The congress will call for greater government and public support in this effort.

REGIONAL BRIEFS

Continued from page 2

San Bernardino dusky shrew *(Sorex monticolus parvidens)*, Santa Catalina shrew *(Sorex ornatus willetti)*, and the Suisun shrew *(Sorex ornatus sinuosus)*. Although the present population status is unknown, all three have extremely reduced ranges with continuing habitat modification and the continued existence of all three shrews is in doubt.

Region 2—The New Mexico Game and Fish Department, under contract to the Service, has completed a survey of the Pecos River in search of the blunt-

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REGIONAL BRIEFS

Continued from page 10

nose shiner *(Notropus simus)*. This minnow is believed to have been extirpated from the Rio Grande, but 2 years ago a new subspecies *(N. s. pecosensis)* was identified in one of its tributaries, the Pecos. The new survey indicates that the subspecies is still extant in the Pecos, but that it is jeopardized by both pollution and loss of water for irrigation and other uses. For this reason, the State has recommended designating the fish as Threatened and Region 2 has nearly completed a proposed listing package.

A recent stock analysis at Dexter National Fish Hatchery has found that the Amistad gambusia *(Gambusia amistadensis)* no longer exists at that facility and, in fact, may never have existed there. This suggests the possibility that the species is extinct. It was declared extinct in the wild several years ago after construction of the Amistad Reservoir destroyed its natural habitat, and it now appears that both captive populations (Dexter and the University of Texas at Austin) are also lost.

The masked bobwhite *(Colinus virginianus ridgwayi)* summer call count results in Arizona and Mexico were discouraging. On Buenos Aires Ranch in Arizona, the only place in the U.S. where attempts have been made to reestablish the jeopardized quail, habitat conditions have deteriorated due to heavy grazing. The Service is contracting with the Arizona Game and Fish Department to complete a study searching for suitable release sites within the State. In cooperation with the Mexican government, 1034 masked bobwhite chicks were released at two sites in northern Mexico within the bird's historic range. Releases in Mexico during 2 previous years may have succeeded in establishing one small population.

Beginning with fiscal year 1983, Ecological Services field offices will have primary Section 7 consultation responsibilities in Region 2.

Region 3—Regional personnel assisted in the Aleutian Canada goose transfer (see Region 7 news) as the birds were shipped through the Minneapolis Airport, caring for the geese until they were ready to resume their journey and helping them make their connecting flight.

The region has also assisted the U.S. Army Corps of Engineers in developing an agreement with Wisconsin for the State to act on behalf of the Corps in processing "Section 404" permits.

Region 4—Dr. Arthur H. Clarke, contractor for the Tar River spiny mussel status survey, has recently found an individual of this mussel *(Canthyria* sp.), which was believed extinct. Clarke found the mussel in the Tar River, North Carolina, near the site of the species' original discovery.

Region 5—As part of the Massachusetts bald eagle *(Haliaeetus leucocephalus)* hacking project, two birds were fitted with small radio-transmitters for monitoring of their movements. After both birds began flying, one went north into Ontario, Canada, where its signal was lost; the other was still near the release site as of early September.

Endangered species biologist Martha Tacha, of the Annapolis Ecological Services Office, is working on a Memorandum of Understanding with the National Zoo in Washington, D.C., to conserve the single known habitat of the Hay's spring amphipod *(Stygobromus hayii)*. The agreement should be signed sometime in September 1982.

West Virginia has signed an Endangered Species Cooperative Agreement, which should be received in the Region 5 office shortly.

Region 6—The final Colorado River Fishery Project report has been completed. The three-volume report consists of a Summary Report (Part 1) which synthesizes and analyzes Field Investigations (Part 2) and Contracted Studies (Part 3). Although Colorado squawfish *(Ptychocheilus lucius)* appear widespread throughout the Upper Colorado River Basin, they are not concentrated in large numbers in any one location. A 66 percent decline in juvenile and adult Colorado squawfish has been calculated for the period between 1960 and 1980, while the decline of young-of-the-year squawfish appears even greater and numbers may still be declining. As spawning areas seem limited, the life stages of greatest concern are those from spawning through the first year. If adequate spawning and rearing areas are not located and maintained, stocking programs will be required to insure the continued existence of the species. Extensive movement of Colorado squawfish between mainstem rivers and tributaries has been documented, with some individuals traveling over 200 miles. A Colorado squawfish spawning site was confirmed in the Yampa River. Thus, it appears blockage of such migration routes may have significant impact on the species.

Humpback chubs *(Gila cypha)* are found primarily in four locations (Black Rocks, Westwater Canyon, and Gray Canyon in the Upper Colorado River Basin, and the Little Colorado River in the Lower Colorado River Basin). All but the Gray Canyon population appear to be stable at this time. It does not appear that present flow depletions and regulations are significant limiting factors to the humpback chub in the Upper Colorado River; however, hybridization with the roundtail chub *(Gila robusta)* has been documented, a factor which may be related to alteration in flow and/or temperature.

Humpback chubs have demonstrated a need for temperatures of at least 16–18°C to spawn and have eggs hatch. Populations in Black Rocks, Westwater Canyon, and the Little Colorado River should be considered relatively secure, barring significant alteration in their habitat. However, the Gray Canyon population in the Green River seems to be decreasing rapidly and will require intensive management if it is to be maintained.

Few bonytail chub *(Gila elegans)* still exist in the Upper Basin. Individuals were found in Gray Canyon; however, the largest existing population is found in Lake Mohave in the Lower Basin. It appears doubtful that the bonytail will survive without intensive management.

Limited copies of the report are available through the Regional Director, Bureau of Reclamation, Upper Colorado Region, P.O. Box 11568, Salt Lake City, Utah 84147.

Region 7—On the recommendation of the Aleutian Canada Goose Recovery Team, all flight-capable Aleutian geese *(Branta canadensis leucopareia)* being held at the Northern Prairie Wildlife Research Center were shipped to Alaska and released on Agattu Island this August. Mortality of geese during the 48-hour journey was low, and the 291 geese released appeared to be in excellent condition. Concurrently, a team of five Service biologists and three volunteers on Buldir Island captured 140 wild Aleutian geese which were also released on Agattu. This trap-and-transplant procedure will be the basis for future efforts to reestablish breeding colonies of Aleutian geese on islands from which they were extirpated by introduced Arctic foxes.

All the geese released or transplanted were banded with blue leg bands marked with white letters or numerals. Fall migration is fast approaching, and sightings of the marked geese in their California and Oregon wintering grounds will soon provide a measure of the success of the release effort.

Preliminary results from this summer's peregrine falcon survey and banding efforts in Alaska are as follows: for *Falco peregrinus anatum*, 87 nesting attempts were recorded; 158 total young were observed for a production ratio of 1.8 young per nesting attempt; and 140 nestlings were banded. For *F. p. tundrius*, 37 nesting attempts were recorded; 64 total young were observed for a production ratio of 1.7 young per nesting attempt; and 60 nestlings were banded. Blood samples for pesticide analysis were taken from 15 of 17 adult peregrines trapped; eight of the 17 had been banded previously.

New Publications

Limited copies of the "Report of Freshwater Mollusks Workshop—19–20 May 1981," by Andrew C. Miller (Compiler), U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, Mississippi 39180, are available. To request a copy, write to the Director (OES), U.S. Fish and Wildlife Service, Washington, D.C. 20240. The report summarizes the objectives and status of a 2-year Corps effort to collect information on sampling methodologies, biological and ecological requirements, and habitat creation for selected common and federally listed Endangered mollusks. It was published in May 1982.

The annual report on the Service's administration of eight marine mammals for which it is responsible under the Marine Mammal Protection Act is now available. Marine species under the Service's jurisdiction are polar bears, sea and marine otters, walruses, manatees (three species), and dugongs. Administrative actions discussed in this report include those affecting Endangered and Threatened species (specifically the West Indian Manatee in Florida and the sea otter in California). Single copies of the report, which covers the period January 1, 1981, to December 31, 1981, may be requested by writing the Director (PUB), U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240.

Copies of *Hiker Traffic on and near the Habitat of Robbins Cinquefoil, an Endangered Plant Species*, Station Bulletin 522, June 1982, are now available. Request copies by writing Dr. G. E. Crow, New Hampshire Agricultural Experiment Station, University of New Hampshire, Durham, New Hampshire 03824. (This publication reports on activity observed during summer 1980. The reports included in the August 1982 BULLETIN covered activity observed in 1981.)

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	ENDANGERED U.S. & Foreign	ENDANGERED Foreign Only	THREATENED U.S. Only	THREATENED U.S. & Foreign	THREATENED Foreign Only	SPECIES* TOTAL
Mammals	15	18	223	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Claims	23	0	2	0	0	0	25
Crustaceans	2	0	0	0	0	0	2
Insects	7	0	0	4	2	0	13
Plants	55	2	0	8	1	2	68
TOTAL	197	44	444	46	7	24	762

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 5 animals
6 plants

Number of Critical Habitats listed: 52
Numberd of Recovery Teams appointed: 69
Number of Recovery Plans approved: 57
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

September 10, 1982

Endangered, Threatened and Sensitive Vascular Plants of Washington, compiled by the Washington Natural Heritage Program and published June 1982 is now available. Copies may be obtained from the Washington Natural Heritage Program, Department of Natural Resources, 3111 Seminar Bldg. (SE 3109), The Evergreen State College, Olympia, Washington 98505. Please send $1.00 to cover the postage, and make checks payable to the Department of Natural Resources.

An illustrated poster of all U.S. Endangered and Threatened animals and plants is now available for $3.95 (quantity discounts available) from Learning Posters, 530 University Avenue, Palo Alto, California 94301. The 22-by-34-inch poster is two-sided and full-color. The side devoted to plants contains pictures of all listed U.S. plants—botanical illustrations by Kirk Caldwell—along with brief descriptions of the plants. The reverse side of the poster includes Carlos Marchiori paintings of 14 listed animals, a chart of all listed animals, and notes about habitat and physical characteristics of many of the species.

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ENDANGERED SPECIES

Technical Bulletin Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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October 1982 Vol. VII No. 10

ENDANGERED SPECIES

Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

Borax Lake Chub Given Final Protection

The Borax Lake chub (*Gila boraxobius*) has been listed by the Service as an Endangered species, and the small area in which it occurs has been designated as Critical Habitat (F.R. 10/5/82). Without this protection, geothermal drilling in the immediate vicinity of the fish's restricted range and human modification of the lake itself could jeopardize the chub's survival by disrupting its fragile habitat. An earlier emergency listing, now expired, gave the fish and its habitat temporary protection from any immediate geothermal development threat, and the final rule allows conservation on a permanent basis.

Background

The Borax Lake chub was first collected in about 1940, and was described in 1980 (Jack E. Willilams and Carl E. Bond, *Proceedings of the Biological Society of Washington*, 93(2), 1980, pp. 291-298). It is a dwarf species of *Gila*, with adults typically reaching a total length of only 38-55 mm, and it is the only member of that genus adapted to high water temperatures throughout the year. This fish is endemic to the Borax Lake area, an unusual aquatic ecosystem located in the high desert of the Alvord Basin, Harney County, southeastern Oregon. During the Pleistocene Epoch, the basin floor was covered by an extensive system of interconnecting lakes. As the region became very arid, the lakes dried and the aquatic organisms were isolated in the remaining springs and creeks, resulting in speciation in response to varying selective pressures within the distinct ecosystems. The Alvord chub (*Gila alvordensis*) also is restricted to the Alvord Basin but occurs in a number of springs and creeks, and it is not found in Borax Lake.

"The Endangered Species Act Amendments of 1982" were signed by President Reagan on October 13th. The amendments, which affect all major portions of the 1973 Act, will receive feature coverage in the November BULLETIN.

The 640-acre area covered by the rule, consisting of 10-acre Borax Lake, Lower Borax Lake, and their associated marshlands, is fed by a series of thermal springs with waters high in dissolved mineral salts. Over thousands of years, sodium borate and other minerals have been deposited around the edges of Borax Lake, gradually raising the lake level to about 10 meters above the basin floor, and further isolating the chub from surrounding watershed. Borax Lake has been experiencing increased threats from human use. Its position—perched above its surroundings—makes it extremely susceptible to disturbance. In 1980, a modification of the lake perimeter and rechannelizaiton of the outflow to divert water for irrigation slightly lowered the lake level. Reduced lake levels would affect the chub by decreasing the available habitat and increasing water temperatures.

A second and perhaps greater threat to the chub is geothermal development. The entire Alvord Basin is classified as a Known Geothermal Resource Area within which the Bureau of Land Management (BLM) has already leased rights to a private energy development company for exploratory drilling. Such development could severly alter the species' habitat. Because of the possibility of interconnecting aquifiers and spring sources, drilling near the lake could alter the underground water system and, in effect, drain the lake (which is at a higher level than most potential drilling sites). Not only could water levels be reduced, or even eliminated, but water pressures and temperatures could be altered. These threats first reached a critical stage in 1980, leading to the emergency listing.

Regulatory History

On May 25, 1980, the Service issued its emergency rule designating the chub as Endangered and determining its Critical Habitat. The Critical Habitat was drawn to include Lower Borax Lake and adjacent marshlands because the chub has been know to occur periodically in these areas and because terrestrial insects dependent on these wetlands make up a significant portion of the chub's diet. Although Borax Lake proper is privately owned, most of the affected area is public land administered by BLM.

Continued on page 4

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Photo by James D. Williams

Sodium borate deposits developed from the evaporation of borax-laden water from the Borax Lake are shown the the foreground. The deposits have formed over several thousands of years.

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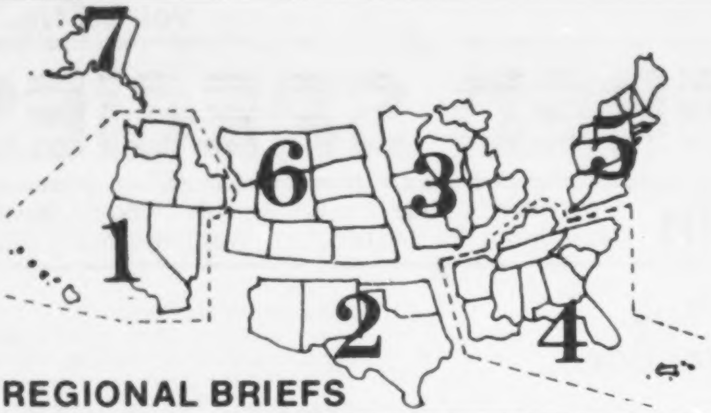

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of September:

Region 1 — Two peregrine falcons (*Falco peregrinus*) which were banded in the late spring of 1981 in California have been recovered. One falcon with an injured wing was found near Lewiston Reservoir in Shasta County in early September, not far from where it was banded in Humboldt County. This bird is presently being rehabilitated at the Santa Cruz Predatory Bird Research Group Lab. The second falcon, banded near Leggett, California, was killed in the State of Sonora, Mexico, in January 1982. This documents for the first time that a California peregrine falcon has migrated to Mexico where organochlorine pesticides are still in widespread use.

The results of peregrine falcon hacking attempt in the Northwest (Oregon and Washington) have not been good for 1982. This was the first year efforts were made to hack falcons in the State of Washington. A total of six chicks were hacked from two sites (see August and September 1982 BULLETINS). Four were believed to have fallen to natural predators, more likely the great horned owl (*Bubo virginianus*). The remaining two may have successfully fledged, but faulty radio transmitters did not allow close surveillance.

Region 2 — A study is being initiated on Aransas National Wildlife Refuge to evaluate the potential of the refuge uplands to support whooping cranes (*Grus americana*) and the effects of prescribed burning and grazing upon this habitat.

Nearly 15,000 razorback suckers (*Xyrauchen texanus*) were stocked in the Verde River in Arizona as part of the continued reintroduction effort for this species. A series of contracts was let to the Arizona Department of Game and Fish to 1) study potential reintroduction sites for the Colorado River squawfish (*Ptychocheilus lucius*) and woundfin (*Plagopterus argentissimus*), 2) conduct a status survey for the Little Colorado spinedace (*Lepidomeda vittata*), and 3) initiate a radio-tagging study of Sonoran pronghorns (*Antilocapra americana sonoriensis*).

Surveys for black-footed ferrets (*Mustella nigripes*) were conducted on the Jicarilla Indian Reservation and on some BLM lands in New Mexico. Encouraging ferret signs were found on the Jicarilla Reservation.

A bald eagle (*Haliaeetus leucocephalus*) nest constructed near Horseshoe Reservoir in Arizona was elevated on an artificial platform so that rising reservoir waters would not innudate the nest this year.

Region 3 — Endangered Species Specialist James Engel recently attended an annual meeting on natural areas in which concern was voiced about conservation of the Driftless Area. This is an unusual region made up of parts of Minnesota, Wisconsin, Iowa, and Illinois that escaped the effects of glaciation and contains a number of relict species that originated in the Pleistocene Epoch. Among the area's vulnerable species are the Iowa pleistocene snail (*Discus macclintocki*) and the northern wild monkshood (*Aconitum noveboracense*).

Region 3 recently hosted an Eastern Peregrine Falcon Recovery Team meeting. Forest Service representatives

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Region 4, Richard B. Russell Federal Bldg., 75 Spring St., S.W., Atlanta, GA 30303 (404-221-3583): James W. Pulliam, *Regional Director;* John I. Christian, *Assistant Regional Director;* Alex B. Montgomery, *Endangered Species Specialist.*

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U.S. Fish and Wildlife Regions

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RULEMAKING ACTIONS September/October 1982

Pine Barrens Treefrog Proposed Delisting

The Service has proposed to remove the Florida population of Pine Barrens treefrog (*Hyla andersonii*) from the U.S. List of Endangered and Threatened Wildlife and Plants and to rescind the Critical Habitat that has been designated for this population (F.R. 9/15/82). Recent evidence indicates that the frog is much more widely distributed than originally known.

Background

When the treefrog was listed as Endangered (F.R. 11/11/77), the only known existing breeding sites were limited to seven small areas in Okaloosa County, and the population was thought to total less than 500 individuals. However, data now available expand the Florida distribution to a total of at least 119 sites in Okaloosa, Walton, Santa Rosa, and Holmes Counties.

In the spring of 1978, the Florida Game and Fresh Water Fish Commission (FGFWFC) began a project to better assess habitat needs and distribution limits of the treefrog within Florida. Surveys conducted during 1978 and 1979 revealed a number of new populations. Because of the more widespread distribution of the treefrog, the Service contracted with FGFWFC in December 1979 to develop recommendations regarding possible reclassification. The report subsequently transmitted to the Service in January 1980 titled "The Florida Population of the Pine Barrens Treefrog (*Hyla andersonii*), A Status Review," recommended that the frog be removed from the Federal list.

During the Florida surveys, incidental investigations were conducted in nearby Alabama areas revealing six other sites in Escambia and Covington counties where the treefrog is established. A 1980 survey of southern Alabama turned up an additional 16 populations in the Geneva-Escambia-Covington County areas. Knowledge of these Alabama populations provides further evidence of the treefrog's overall well-being in what is essentially a single Florida-Alabama population unit that is much larger than originally suspected.

Although the frog appears to be limited to only four counties in Florida, it is of widespread occurrence within this area. In addition, a considerable amount of habitat which is very likely to harbor the frog has not yet been investigated. These two factors suggest that the Florida population is relatively secure for the immediate future.

Threats to the Species

The final rule listing the treefrog as Endangered (F.R. 11/11/77) indicated that development and land clearing for agricultural use had destroyed four of the 11 known population sites within the 7-year period following the frog's discovery. The most recent data do not substantiate such a severe trend in habitat loss.

Of the 112 new habitat sites surveyed by FGFWFC between May 1978 and June 1980, four had been degraded to some degree by siltation or runoff, but still supported frogs. Fifteen of the localities were within or adjacent to clear-cut areas, but there was no immediate evidence of adverse effects to the frog population.

To date, drainage of bogs for agricultural or silvicultural purposes has not been extensively practiced within the Florida range. Some of the Pine Barren treefrog's habitat has likely been lost through the creation of artificial lakes and ponds within the bog areas. Manmade impoundments are common throughout the treefrog's Florida range, and new impoundments will likely continue to pose at least a minor threat.

Many of the subclimax communities, herb bog and shrub habitats required by the Pine Barrens treefrog have apparently disappeared during the last several centuries as the result of wildfires being suppressed or limited through human activity. However, some evidence suggests that other disturbance factors may be suitable substitutes for fire. Clearcutting, such as may occur with the construction and maintenance of electric and gas transmission lines, increases groundwater seepage by reducing evapotranspiration, thus contributing to the formation of herb bogs. Numerous populations were found along such transmission lines during the 1978-1980 surveys.

Comments concerning this proposal should be sent by November 15, 1982, to the Regional Director (ARD/FA), U.S. Fish and Wildlife Service, 75 Spring Street, S.W. Atlanta, Georgia 30303.

Service Conducts 5-Year Review

The Service has initiated a review of animals and plants listed during 1977 to insure that the species' most current status is accurately reflected by the Endangered or Threatened classification now assigned them under the Endangered Species Act of 1973, as amended (F.R. 9/27/82). The Act requires the Service to conduct a review of all listed species at least once every 5 years.

The public, other concerned governmental agencies, the scientific community, industry, and any other interested parties are invited to submit comments on the status of the species listed below. These comments must be in writing and should contain the name, signature, telephone number, and the association, institution, or business, if any, of the party. Comments must be received by the Service by 1/25/83.

The Service will acknowledge in writing all comments received. If, as a result of this review, any present classifications as Endangered or Threatened are found to be inconsistent with current evidence, the Service will propose the appropriate changes of classification.

Submit comments to Regional Director (FA), U.S. Fish and Wildlife Service, Suite 1692, Lloyd 500 Building, 500 N.E. Multnomah Street, Portland, Oregon 97232 (species 1, 2, 3, 4, 6, 17, 18, 19, 20) or Regional Director (FA), U.S. Fish and Wildlife Service, Richard B. Russell Federal Building, 75 Spring Street, S.W., Atlanta, Georgia 30303 (species 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16).

Species Under Review:

1. Otter, southern sea, *Enhydra lutris nereis*; 2. Mallard, Marianas, *Anas oustaleti*; 3. Shrike, San Clemente loggerhead, *Lanius ludovicianus mearnsi*; 4. Sparrow, San Clemente sage, *Amphispiza belli clementeae*; 5. Anole, Culebra giant, *Anolis roosevelti*; 6. Lizard, Island night, *Klauberina riversiana*; 7. Lizard, St. Croix ground, *Ameiva polops*; 8. Snake, Atlantic salt marsh, *Nerodia fasciata*; 9. Coqui, golden, *Eleuthrodactylus jasperi*; 10. Treefrog, pine barrens, *Hyla andersonii*; 11. Cavefish, Alabama, *Speoplatyrhinus poulsoni*; 12. Chub, slender, *Hybopsis cahni*; 13. Chub, spotfin, *Hybopsis monacha*; 14. Darter, slackwater, *Etheostoma boschungi*; 15. Madtom, yellowfin, *Noturus flavipinnis*; 16. Riffle shell clam, tan, *Epioblasma walkeri*; 17. Fabaceae-Pea family, *Lotus dendroideus (=scoparius)* ssp. *traskiae*, San Clemente Island broom; 18. Malvaceae-Mallow family, *Malacothamnus clementinus*, San Clemente Island bush-mallow; 19. Ranunculaceae-Buttercup family, *Delphinium kinkiense*, San Clemente Island larkspur; 20. Scrophulariaceae-Snapdragon family, *Castilleja grisea*, San Clemente Island Indian paintbrush.

*U.S. GOVERNMENT PRINTING OFFICE: 1982—381-580

Madison Cave Isopod Listed as Threatened

The Madison Cave isopod (*Antrolana lira*) has been listed by the Service as a Threatened species (F.R. 10/4/82). This small freshwater crustacean, which is restricted to a single cave and an adjoining fissure, is jeopardized by vandalism, habitat damage from unauthorized visitors, and mercury pollution.

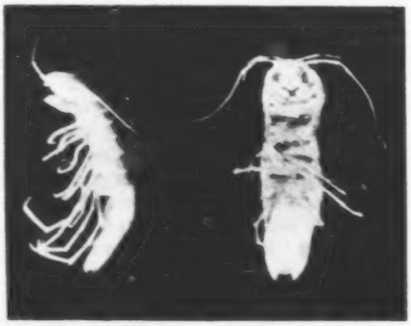
Background

The earliest known collection of the Madison Cave isopod was made in 1958 by Dr. Thomas Barr of the University of Kentucky, and the species was described in 1964 (*International Journal of Speleology*, Vol. 1, pp. 229-236 and plates) by Dr. Thomas E. Bowman of the Smithsonian Institution. Not only is this species the only member of its genus, but also the only freshwater representative of its family (*Cirolanidae*) north of Texas. The isopod is about 12 mm in length and, like some other cave-dwelling creatures, lacks pigment and eyes. It has been found only in three small pools of water in Augusta County, Virginia. Two of these pools are in Madison Cave, and the other is in a nearby fissure.

One threat to the isopod is unauthorized human visitation to the cave, which has resulted in trash accumulation and siltation in the pools. A recent study has also found that persons standing on the steep talus banks cause the clay talus to creep down into the pools. These factors are reducing the size and quality of the isopod's very limited habitat. The species also is exposed to mercury contamination from the nearby South River, which apparently is connected with the cave by a subterranean stream. Although the chemical factory that was the source of the pollution is no longer active, the mercury, a heavy metal, persists in the river sediment and is being slowly released into the water.

The Madison Cave isopod was first proposed as a Threatened species in 1977. In accordance with the listing deadline imposed by the Endangered Species Act Amendments of 1978, the proposal was withdrawn in 1979. Based on significant new information about threats to the isopod, it was reproposed as Threatened on October 6, 1980. During the subsequent public comment period, no position on the proposal was taken by the State of Virginia. Comments from the U.S. Army Corps of Engineers stated that it has no current projects in the Madison Cave area, and that the effect of a potential project, the Verona Dam and Lake, would be investigated should studies on that facility be reactivated. In its response, the Service added that any detrimental effects of the project, if reactivated, would be unlikely. Comments in support of the listing were received from Dr. John R. Holsinger of Old Dominion University and Dr. Thomas E. Bowman of the National Museum of Natural History. Additionally, a 1982 ecological study of the isopod by T.L. Collins added much to the knowledge of the species and confirmed the threats to its continued existence.

Critical Habitat was not designated for the isopod because publication of a map of its extremely restricted distribution would add to the danger of vandalism. Nevertheless, the habitat conservation measures outlined in Section 7 of the Act do apply. Federal agencies now are required to insure that any actions they authorize, fund, or carry out will not likely jeopardize the continued existence of the Madison Cave isopod.



The Madison Cave isopod, a small freshwater crustacean, is restricted to a single cave and an adjoining fissure in Augusta County, Virginia.

Photo by Christopher P. White

Foreign Species Proposal Expires

A 1980 rulemaking which proposes as Endangered the U.S. population of the thick-billed parrot (*Rhynchopsitta pachychynchus*), shorttailed albatross (*Diomedea albatrus*), margay cat (*Felis wiedii*), and jaguar (*Panthera onca*) has been withdrawn by the Service F.R. (9/17/82). The 2-year time limit for proposed rulemakings, mandated by the 1978 amendments to the Endangered Species Act of 1973, has expired for this proposal.

The listing of the U.S. population of the ocelot (*Felis paradlis*), which was proposed at the same time as the above species, was finalized on July 21, 1982. (See the August 1982 BULLETIN for details.) Foreign populations of all five species are listed under the Act as Endangered.

BORAX LAKE CHUB

Continued from page 1

During the 240-day life of the emergency rule, consultations with the BLM on geothermal exploratory drilling were initiated pursuant to Section 7 of the Endangered Species Act. As part of the BLM leasing process, the Anadarko Production Company, the lease holder around Borax Lake, agreed to a lake monitoring program. The company also agreed to a stipulation that any change in the water quality or quantity of Borax Lake caused by its drilling would result in suspension of operations until the problem is identified and resolved.

In order to insure continued conservation of the chub and its habitat, the Service proposed a final listing and Critical Habitat rule on October 16, 1980. Fourteen written comments were received in response to the proposal. The Governor of Oregon, the Oregon Department of Fish and Wildlife, and the BLM generally supported the proposed listing, as did two local conservation organizations and five individuals.

Concern about the potential affect of a Critical Habitat determination on geothermal development was voiced by Anadarko, the local chamber of commerce, and the Harney County court. Only one of those responding, an individual, expressed outright opposition, again out of concern about possible restrictions of geothermal drilling. A public meeting on the proposal was held in Burns, Oregon, on November 13, 1980. At a subsequent public hearing on December 2, 1980, also at Burns, comments similar to the written responses were received.

Effects of the Rule

After analysis of the available scientific data, economic information, and responses to the proposed rule, the Service designated the Borax Lake chub an Endangered species and determined a 640-acre area (including Borax Lake, Lower Borax Lake, and their adjacent marshes) Critical Habitat. All Provisions of 50 CRF 17.21 and 17.23 now apply, including the prohibitions on taking the species and on interstate or international commerce. There are many kinds of actions that can be carried out within the Critical Habitat of the Borax Lake chub without adverse effects, and indeed no activity is automatically excluded.

Under the existing monitoring program and geothermal leasing provisions formulated in 1980, the Service foresees no significant impact of the listing rule on geothermal explorations. Anadarko has already voluntarily delineated a zone slightly larger than the Critical Habitat within which it does not plan to drill.

Puerto Rican Parrot Recovery Program Shows Progress

by James W. Wiley
Patuxent Wildlife Research Center,
Puerto Rico Field Station

Although the wild population is still precariously close to extinction, several developments from research on captive productivity and increasing wild nesting success have been encouraging in the effort to recover the critically Endangered Puerto Rican parrot (*Amazona vittata*). The research is a cooperative program with the U.S. Forest Service (USFS), and is being conducted within Patuxent's Endangered Species Ecology Section and the USFS Institute of Tropical Forestry.

From an all-time low of 13 birds in 1975, the wild population has shown a slow but substantial increase in numbers. In 1980, 8 chicks fledged from 3 nests, and in 1981, a program (1968 to present) record of 10 chicks fledged from 3 nests, for a minimum wild population of 29 birds in July 1982. Yet, despite improved nest success and productivity of parrot pairs, the numbers of breeding pairs in the wild has not shown the expected rate of growth, apparently because of losses of subadult birds. The poor survivorship of non-breeding birds is believed primarily the result of predation by raptors such as the red-tailed hawk (*Buteo jamaicensis*) and wintering peregrine falcon (*Falco peregrinus*). Most mortality apparently occurs in the first year. Breeding adult parrot survival has been very good, and none have been lost since 1976 while two new pairs have been recruited into the breeding population.

All parrot pairs are using improved natural or artificial nest sites designed to discourage pearly-eyed thrashers (*Margarops fuscatus*) from entering the nests. Thrashers are provided with their own nest sites, of sizes and dimensions more to their preferences, near the parrot nests. By defending its own nest territory, a resident thrasher effectively keeps other thrashers away. Although they formerly were the most critical problem affecting parrot nesting success, thrashers are not currently a serious threat.

Twice we have recorded wild Puerto Rican parrots producing replacement clutches when their first set of eggs failed. Based on this and experiments with captive Puerto Rican and similar, non-listed Hispaniolan (*A. ventralis*) parrots, an attempt was made to artifically "double-clutch" a wild pair in 1980. The female had been laying nonviable thin-shelled eggs for several years. We transferred each of the thin-shelled eggs to the field station incubator as they were laid, and replaced them with plaster dummies. Once the female completed her clutch, the dummies were removed in the hope that she would replace them with a second clutch. She did lay an additional two fertile eggs and, although the eggs failed to hatch, the double-clutching technique does show good potential for increasing wild production.

Progress with Captive Production

The recovery effort for the wild Puerto Rican parrot population is closely associated with the captive propagation program at the Puerto Rico Field Station in the Luquillo Forest. Along with serving as insurance against loss of the species by disease or natural disasters, the captives are being used to bolster the wild population. The captive flock now stands at 15 birds, composed of 6 males, 8 females, and 1 chick (sex undetermined). Two of the five pairs have produced fertile eggs; five chicks have been produced at the aviary, and four of these have been fostered into wild nests Fostering is the best strategy for achieving success in getting captive-produced chicks into the wild, as they will closely associate with the foster parents for an extended post-fledging dependency and learning period.

In 1979, the first captive-produced chick fledged from a wild nest after the foster parents failed to produce chicks of their own. The next year, two captive-produced chicks were fostered into that nest after all of the wild pair's eggs again failed to hatch. In 1981, one captive-produced nestling was fostered into a different nest already containing chicks of its own. Although we have found it best to place chicks when they are less than one-quarter grown, the 1981 chick could not be slipped into the nest until it was half-grown because of situations requiring our attention at other nests. As it had been hand-raised in a brooder, the youngster initially had some difficulty in learning to take food from its foster parents. For a while, we had to remove it from the nest at least once daily for supplemental feeding but the chick was eventually weaned from our care and it fledged along with its foster siblings.

To test whether wild pairs can adequately raise an additional chick, we have twice artifically increased the normal brood of three chicks to four. In both cases, the additional chick was accepted and all young showed excellent growth rates and fledged successfully. Further experiments may reveal that brood sizes can be further increased.

Use of Surrogates

A flock of 28 Hispaniolan parrots is also being maintained at the field station aviary, and these birds have proven themselves invaluable as surrogates. For example, they have raised captive-produced Puerto Rican parrot eggs and chicks where the adults were being double-clutched or had rejected their eggs. Eggs and chicks salvaged from some wild nests where they were jeopardized by storms, predation, or other factors also have been fostered under captive Hispaniolans. These birds are able to do a more reliable job of incubating and brooding than we can achieve with mechanical devices. The surrogate parents are also more efficient in raising nestlings, as we have to feed the chicks hourly around the clock to achieve the growth rates desired. (Fostering chicks under surrogates saves wear and tear on biologists, too). Hispaniolan parents also serve to "train" young Puerto Rican parrot chicks before they are fostered into wild nests. If these chicks are placed directly into wild nests after hand-raising, they will sometimes be intimidated by the presence of other young birds in the nest and by the adults' presence. An intermediate period with a Hispaniolan parrot gives the hand-raised chick some preparation for its new environment.

Some first-time Puerto Rican parrot parents have been extremely clumsy or awkward with their eggs and chicks, and we have not trusted them with their own offspring. Instead, we have used Hispaniolan chicks and eggs to "train" adult Puerto Rican pairs in the skills required to care for their progeny. After proving themselves, Puerto Rican adults have been allowed to raise chicks of their own species. The surrogate species has served as a "stand-in" at wild nests, too. In situations we judge too dangerous to leave a Puerto Rican parrot chick in a wild nest, we substitute a Hispaniolan parrot of appropriate age until the threat has been eliminated. In one wild nest, the nonviable eggs were far overdue for hatching and the female was about to desert when we fostered a just-hatched Hispaniolan chick into the nest. The female immediately settled into the task of raising the chick. We could not have afforded to chance this switch with a more valuable Puerto Rican chick, as the risk in leaving the nestling in a poorly

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PARROT

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attended nest at that age would be far too great. At an appropriate age, we replaced the Hispaniolan with a Puerto Rican parrot chick.

Increased Egg Production

Double-clutching to increase egg production has been successful with both species. In 1981, an experiment with Hispaniolan parrots suggested that sequential removal of eggs could increase production substantially above that obtained by whole clutch removal. By removing the entire clutch at once, we have twice been able to get a total of nine eggs (five in first clutch, four in second) from one Hispaniolan female. But with a sequential removal of eggs from the same female, she laid 21 eggs before the experiment was stopped, of which 20 were fertile. An important aspect of this technique is that egg-laying birds can be synchronized with other breeding birds (wild or captive). If captive Puerto Rican parrots or Hispaniolan surrogates are started laying earlier than the wild population by stimulation through an artificial photoperiod regime, and if the eggs are removed as the females lay them, the captives are essentially held in "readiness" until the wild population begins to lay.

Once the removal of eggs ceases, the manipulated birds begin incubating. Chicks of appropriate ages can then be produced for fostering into wild nests either to serve as surrogates or to supplement wild Puerto Rican parrot production, and adult Hispaniolan parrots can be synchronized to receive captive or wild-produced eggs and chicks. In the 1981 experiment, the female Hispaniolan parrot was allowed to incubate her last two eggs (numbers 20 and 21). She did so for 32 days, far beyond the normal 27-day incubation period for Hispaniolan parrots. This is particularly impressive because she had been laying eggs for over 2½ months before she was finally permitted to begin incubation.

Future Research Directions

Because the single wild population is vulnerable to tropical storms or disease, the reestablishment of other Puerto Rican parrot populations elsewhere on the island is essential to the survival of the species. Future research will focus on developing techniques for releasing free-flying birds. Captive-produced Hispaniolan parrots of several age classes will be released in an area of their native Dominican Republic where healthy populations still occur. Release techniques will be developed, and observations will be made on how the captive-raised birds integrate into wild flocks. Movement and survival will be monitored using small radio-transmitters, providing information vital in future introduction procedures for Puerto Rican parrots in the Luquillo Forest and other sites in Puerto Rico. The telemetry system will also aid in the study of post-fledging mortality of the Endangered parrots, another major research goal in the years ahead.

Additional information may be obtained by contacting Dr. John G. Rogers, Jr., Acting Director, Patuxent Wildlife Research Center, or Dr. H. Randolph Perry, Jr., Leader, Endangered Species Section (U.S. Fish and Wildlife Service, Laurel, Maryland 20708).

Photo by Helen Snyder

Mutual preening in captive Puerto Rican parrots. Luquillo Forest, Puerto Rico.

Plans Approved for Cavefish and Eagle

The Service's Director signed two recovery plans during September, bringing the total of approved recovery plans to 59. The Southwestern Bald Eagle Recovery Plan was signed on September 8 and the Alabama Cavefish Recovery Plan on September 17. Copies of these plans will be available in four to six months from the Denver Fish and Wildlife Reference Service, Unit i, 3840 York Street, Denver, Colorado 80205 (800/525-3426).

The Southwestern Bald Eagle Recovery Plan presents recovery actions for the bald eagle (*Haliaeetus leucocephalus*) population included in Oklahoma, Texas west of the 100th meridian, all of New Mexico and Arizona, and that area of California bordering the Lower Colorado River. Prior to the mid-1970's, no data existed to document the population size or distribution of the eagle in this area. The conjecture that the eagle population was declining can only be inferred.

Presently, 13 breeding territories of the southwestern bald eagle are known and all contain varying expanses of mature streamside forests. Though the relationship is not fully understood, suitable riparian habitat appears to be an essential prerequisite to successful eagle reproduction.

The southwestern bald eagle reaches its greatest density in the Salt and Verde River systems of central Arizona where 12 of the 13 known breeding territories are found. It is estimated that 50 percent of the apparently suitable habitat in the Salt and Verde River systems is presently unoccupied. In addition, riparian forests and perennial streams in adjacent drainages appear suitable for nesting bald eagles. The recovery planners recommend that the southwestern bald eagle not be downlisted until the reproductive effort has been effectively doubled and the population range has expanded to include one or more of these river drainages in addition to the Salt and Verde systems.

Reproductive health of the southwestern bald eagle appears to be good, as evidenced by hatching success and low pesticide content of eggs. Most reproductive loses appear to be associated with accidental deaths of embryos and nestlings.

The recovery team proposes the following guidelines to recover the species: (1) Maintain and protect the existing nesting territories; (2) enhance nesting territories to increase the production of young above the present average of 1.02 fledglings per active nest; (3) continue using a production

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CAVEFISH AND EAGLE

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index and annual monitoring program to determine whether the population is increasing, decreasing, or stable; (4) identify, maintain, and improve wintering habitat; and (5) promote research that will lead to increased eagle survival.

Considering the extant breeding population, recovery team members and consultants consider artificial rearing of southwestern bald eagles to be unwarranted at this time. However, in the event of significant decline in reproductive success, the recovery plan recommends a contingency plan for artificial propagation.

For more information regarding the Southwestern Bald Eagle Recovery Plan, contact the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103.

The Alabama cavefish (*Speoplatyrhinus poulsoni*) is known from a single site, Key Cave in Lauderdale County, Alabama. It is the rarest of American cavefish and, probably, one of the rarest freshwater fish. It was described in 1974 on the basis of nine specimens from the type locality.

The Alabama cavefish's distribution is characteristic of relicts, occurring in a limited area at the periphery of a broader family range. It is quite possible, based on superficial geological and hydrological grounds, however, that the fish does not exist in a single, isolated pocket, but is somewhat more widespread and more abundant than is currently known. Speological explorations and biospeological investigations of the limestone caves of northwestern Alabama have not been as extensive as those in the northeastern part of the State, so it is appropriate to anticipate the eventual discovery of additional *S. poulsoni* sites. Searching for additional sites of the Alabama cavefish is a primary strategy in planning the recovery of this fish.

The Alabama cavefish was described in 1974 [*Copeia* (2):486-493] by M.R. Cooper and R.A. Kuehne. It has a greatly flattened snout and no externally visible eyes. It ranges from 31.2 to 58.3 mm, but its maximum size is not known. The species has no obvious pigment and looks generally pinkish-white. The body covering, fins, fin rays, and elements of the cranial skeleton are quite transparent. The fish can be readily distinguished from other amblyopsid cavefishes.

Key cave is a large, multi-level maze, with two interconnected entrances. The entrances are on land administered by the Tennessee Valley Authority, but much of the cave underlies land that is not within the Pickwick Reservation boundaries and is used for cotton farming. The cave is largely unexplored.

Algae, ferns, and a few other plants can be found at the entrances and twilight zones of the cave. Many guanobites can be found just beyond the twilight zones. Source of the guano is a large summer nursery colony of the Endangered gray bat (*Myotis grisescens*). Although the absolute importance of the gray bat to the ecology of the Alabama cavefish is unknown, it is certainly a primary biotic source of energy at Key Cave. Therefore, another provision of this recovery plan is to implement the Gray Bat Recovery Plan.

The first objective of the Alabama Cavefish Recovery Plan is to assess the status, distribution, ecology, and threats to the species in order to assess that the fish's needs for survival are known and met. A later objective is to consider removing it from the U.S. List of Endangered and Threatened Wildlife and Plants if conditions warrant.

For more information regarding the Alabama Cavefish Recovery Plan, contact the Regional Director, U.S. Fish and Wildlife Service, Richard B. Russell Federal Building, 75 Spring Street, S.W., Atlanta, Georgia 30303.

REGIONAL BRIEFS

Continued from page 2

reported sighting a banded peregrine (possibly an eastern) feeding on a pigeon outside their regional office building in Milwaukee, Wisconsin. There has also been a peregrine sighting recently in Iowa which, because of its location, might be one of the birds from the Minnesota release.

Region 4 — The Florida Game and Fresh Water Fish Commission has received 27 submissions for papers to be presented at the Red-cockaded Woodpecker Symposium to be held on January 27-28, 1983, at Panama City, Florida. The symposium is being cosponsored by the Fish and Wildlife Service and the Forest Service, and the State of Florida will serve as the host. Additional information and the agenda should be available in the near future. Those interested in attending should contact Don Wood, Division of Wildlife, Florida Game and Fresh Water Fish Commission, 620 South Meridian Street, Tallahassee, Florida 32301; telephone 904/488-3831.

Six additional specimens of the Tar River spiny mussel (*Canthyria* sp.) have been found in the Tar River, North Carolina, by Dr. Arthur H. Clarke, contractor for the status survey. These mussels were found within the original range for this species.

Region 5—Recovery plans for a number of listed species are progressing, thanks to the work of cooperating offices and agencies. An agency review draft of the Chittenango Ovate Amber Snail Recovery Plan, prepared by the State of New York, has been received, and an agency draft of the Flat-spired Three-toothed Snail Recovery Plan has been prepared by Andy Moser of the Service's Annapolis (Maryland) Ecological Services Office.

Efforts to recover the Endangered Virginia roundleaf birch (*Betula uber*) are beginning to show signs for optimism. The remaining wild population has declined steadily to a critical level of five adults and several seedlings (see the April 1982 BULLETIN). In order to enhance natural regeneration, areas within the adult trees' zone of seed dispersal were "opened up" in 1981, exposing the soil and removing competing vegetation to increase the chances of *B. uber* seed germination and seedling establishment. Approximately 50 new *B. uber* seedlings recently were counted on one of the prepared areas.

Region 6 — In September, a Service botanist searched potential habitat in Utah around the type locality for the purple-spined hedgehog cactus (*Echinocereus englemannii* var. *purpureus*), an Endangered cactus. Since a sighting of this variety hasn't been documented since the original collection over 30 years ago, the first recovery task identified in the draft recovery plan was a search for the plant. Individuals were found that fit the narrow definition of variety *purpureus*; however, these are intermixed on hillsides with individuals of *Echinocereus englemannii* var. *chrysocentrus*, a common variety occurring in Utah, Arizona, Nevada, and California. Individuals corresponding to var. *purpureus* represent at most only 5 percent of the *Echinocereus englemannii* plants in the vicinity of the type locality, with intermediate plants between the two varieties also present. Now that the first recovery task has been completed, we need to pursue the second recovery task, which is to determine the taxonomic distinctness of var. *purpureus*.

The Canadian Wildlife Serivce, the U.S. Fish and Wildlife Service, and involved States are again participating in a whooping crane (*Grus americana*) tracking program to determine what habitat is utilized by the migrating birds between Canada's Wood Buffalo National Park and Aransas National Wildlife Refuge in Texas. In fall 1981, a young-of-the-year whooper was successfully tracked throughout migration. Last spring, the bird migrated back to Wood Buffalo National Park, but unfortunately it was not tracked. The transmitter is still working, so the bird is being tracked again this fall. It will be interesting to see how closely its behavior parallels that exhibited last year.

Five young-of-the-year whoopers were fitted with transmitters early this

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REGIONAL BRIEFS

Continued from page 7

year at Wood Buffalo National Park. Since then, two have been killed by wolves. It is hoped that at least one of the remaining young birds can be tracked along its entire migration route.

The Grizzly Bear/Wolf Technical Workshop was held on July 28-30, 1982, at Ford Station, Montana. Chris Servheen, Grizzly Bear Recovery Coordinator, served as chairperson for the meeting this year. Topics discussed included mapping grizzly bear (*Ursus arctos horribilis*) habitat, oil and gas activity in the Northern Rockies, wolf (*Canis lupus*) recovery and management, forest management practices, and limiting factors and monitoring of grizzly populations. The workshop was a success, with more than 140 individuals representing several agencies and institutions in attendance. A meeting of the Montana Bald Eagle Working Group preceeded the workshop on July 27.

Region 7 — The revised Aleutian Canada Goose Recovery Plan has been approved and signed by Director Jantzen. It is being printed and should be available for distribution within 60 days.

During the 1982 field season, the Division of Endangered Species and Raptor Management Studies surveyed or contracted for surveys in seven areas within interior and Arctic Alaska for peregrine falcons and other raptors. Approximately 1,250 river miles were covered. In addition, three other areas within the same regions, consisting of roughly 600 river miles, were surveyed by the Bureau of Land Management. In the interior, 88 pairs of American peregrine falcons (*P. f. anatum*), 14 lone adults, and 160 young were observed. In the Arctic (*P. f. tundrius*) count, 37 pairs, 5 lone adults and 64 young were seen. A total of 200 young were banded statewide. The number of nesting pairs found in the interior was a few more than last year, but production was 20 percent less than in 1981. This decrease was probably a result of the late, colder than average spring experienced this year. For the Arctic peregrine falcon population, the number of pairs increased by 20 percent and production increased by roughly 50 percent.

Service personnel trapped 17 adult peregrines in 1982, 11 females and 6 males, and blood samples for pesticide analysis were taken. Eight of these birds were previously banded: two as adults last year and six as nestlings in 1979, 1980 and 1981. The two adults were breeding at the same cliffs they used in 1981. The second-year bird (a nonbreeder) was occupying a cliff 3 miles from the cliff he fledged from last year. Three third-year birds and two older birds were breeding at cliffs up to 140 miles from the cliff where they fledged. One female, banded as a nestling on the Yukon River in 1979, was breeding on the Tanana River this year. At five cliffs where birds were trapped in both 1981 and 1982, five of the ten birds were different in 1982, three were the same, and two were unknown. If this trend continues, it would indicate either a much higher adult turnover rate or a much lower site fidelity than previously thought, or both.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	U.S. & Foreign	Foreign Only	THREATENED U.S. Only	U.S. & Foreign	Foreign Only	SPECIES* TOTAL
Mammals	15	18	223	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	7	6	55	8	4	0	80
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	1	0	0	3
Insects	7	0	0	4	2	0	13
Plants	55	2	0	8	1	2	68
TOTAL	197	44	444	47	7	24	763

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 4 animals
6 plants

Number of Critical Habitats listed: 52
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 59
Number of Cooperative Agreements signed with States:
38 fish & wildlife
11 plants

October 4, 1982

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Endangered Species Program, Washington, D.C. 20240

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President Signs Amendments To Endangered Species Act

On Wednesday, October 13th, President Reagan signed "The Endangered Species Act Amendments of 1982," reauthorizing and further amending the Endangered Species Act of 1973. The Amendments specify shorter time periods to complete listing functions (Section 4) and the exemption process (Section 7), and they also affect other important provisions of the Act.

Listing Made More Efficient

Changes affecting the listing and delisting of species are intended to ensure that decisions in every phase of the processes are based *solely* upon biological criteria, and to prevent nonbiological considerations from affecting these processes. The legislative history accompanying the amendments specify that the economic considerations applying to Critical Habitat designations have no relevance to determinations regarding the status of species. The listing process has been streamlined by reducing the time periods for rulemaking, consolidating public meeting and hearing requirements, and providing for the separation of Critical Habitat designations from the listing process when appropriate.

After receiving a peitition to list or delist, the Service must now act "to the maximum extent practicable" within a 90-day period, publishing a finding on whether or not the petition presents substantial scientific or commericial data to support the proposed action. The requirement to act on petitions within 90 days will be waived only in the event that devoting staff resources to petition responses would interfere with actions needed to list other species in greater need of protection. The amendments require that any selection of one action before another must be made on the basis of a scientifically based priority system to be published by the Service.

Within 12 months of receiving a "substantial" petition, the Service must publish a proposed rulemaking, determine that the petitioned action is not warranted, or determine that the action is warranted but that other listing or delisting actions currently preclude undertaking new actions. In any case, notice of all findings must be published in the *Federal Register*. If the Service makes a negative judgment on any petition, the determination will be subject to judicial review.

The 12-month time period can be waived only if the Service is actually working and making progress on other listings and delistings. Delayed petitions are treated as if resubmitted and an additional year is allowed for the Service to make its required determination. The Service's inability to propose an otherwise warranted petitioned species will be subject to judicial review. Petitions to revise Critical Habitat are not required to present economic information relevant to the proposed revision, and will be handled by the Service in the same manner as other petitions. The amendments also apply to now pending petitions.

Final action on listing, delisting, or Critical Habitat proposals must now be accomplished within 1 year, instead of 2 years as previously allowed. A 6-month

Continued on page 7

Important Condor Habitat Discovered By Radio Telemetry

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A free-flying California condor (*Gymnogyps californianus*) was captured for the first time by the Service on October 12 in the mountains northeast of Ventura, California. As authorized by the California Fish and Game Commission, biologists with the Condor Research Center have been attempting to trap a prospective mate for Topa Topa, a male condor at the Los Angeles Zoo. The condor was netted as it fed on a calf carcass, and was held near the site while a blood sample was rushed to the San Diego Zoo for a chromosome analysis to determine the bird's sex. When the condor proved to be a male, it was fitted with two small (approximately 40-gram), solar-powered radio transmitters attached at each patagium along with two relatively inconspicous numbered tags for visual identification, and released nearby.

Telemetry data gained since the bird's release have already provided valuable information on previously unknown condor habitat. The condor has shown no apparent reaction to the tags or transmitters. It remained in the release area for several days and was observed feeding; later, the bird was tracked from the north to the Greenhorn Mountains in Sequoia National Park. The bird has roosted in the forest or in the foothills of the southern Sierra Nevada since that time. The condor research team is pleased with the data gathering so far, especially the valuable information on the condor foraging patterns and roosting areas. Some of these areas show signs of long-term condor use but little was known about them until now. At least one important roosting site appears vulnerable at this time because of access roads and nearby hunting. The new information should help in the conservation of these habitats.

The condor research team has resumed attempts to trap an immature female condor as a prospective mate for Topa Topa, the male condor in captivity at the Los Angeles Zoo. Meanwhile, the condor chick taken into captivity on August 13 due to parental neglect is doing well and is making its first short flights.

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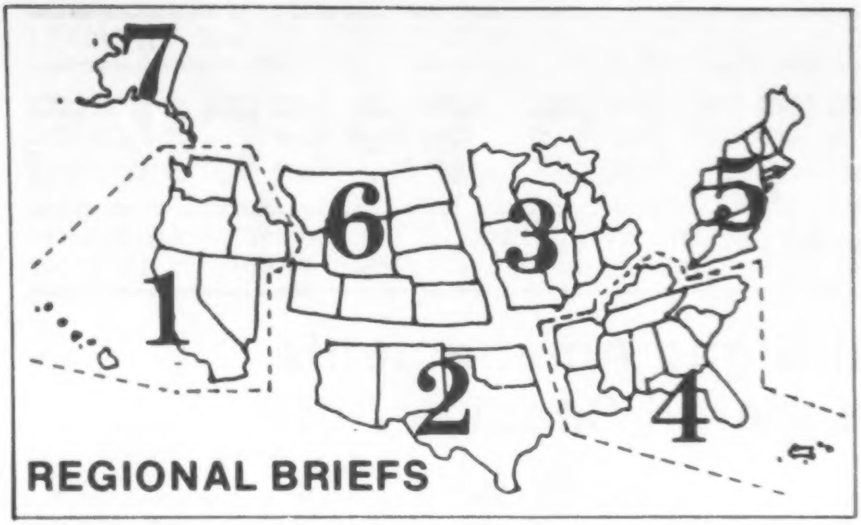

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of October:

Region 1—Update: California Channel Island Bald Eagle Reintroduction Project—Of the bald eagles (*Haliaeetus leucocephalus)* released thus far (6 in 1980, 6 in 1981, and 4 in 1982, all on Santa Catalina Island), a population of 12 to 14 eagles still resides on the island. The known losses were: 1) one of the 1980 birds left the island; and 2) a 1981 eagle was shot. These results are considered quite successful, and we hope they will lead to natural reproduction on the island.

Euphorbia skottsbergii var. *kalaeloana* Sherff, also known as the 'Ewa Plains 'akoko, was officially listed as Endangered on August 24, 1982 (see September 1982 BULLETIN). The plant was believed to have a major portion of its population situated in an area destined to become the center of a major Federal-State of Hawai'i development project, the Barbers Point Deep Draft Harbor. A botanical survey of the area was completed in late 1979, and it was estimated that 4,000 individuals existed throughout its range on the 'Ewa Plains, O'ahu. In anticipation of possible Section 7 conflicts if and when the plant was listed, the U.S. Army Corps of Engineers began informal consultation with the Service early in the project planning stages. In April 1979, it appeared that construction might have a significant impact on the plant; therefore, the Service recommended that additional surveys and continued transplantation experimentation be pursued. The Corps cooperated fully with our suggestions and did fund additional surveys. An October 1981 survey revealed that the area originally believed to contain only perhaps 500 plants contained over 5,000. As a bonus, the plants were located in the Naval munitions storage area, a site well protected from fire and vandalism and situated beyond the area to be affected by the harbor development. Largely as a result of this find, when the plant was listed in August as an Endangered species, the loss of the approximately 50 individuals existing in the area of the harbor-to-be was no longer crucial to the survival of the 'akoko. Early cooperation on an informal basis between the Service and the Corps eliminated what could have been a major development/endangered species conflict.

Contract work was completed by Dr. Paul Hammond and Dr. David McCorkle on the 1982 status and distribution of the Oregon silverspot butterfly (*Speyeria zerene hippolyta*). Twenty-four areas of known, historic, and potential habitat was surveyed. Three vigorous populations and three weak populations were found. Only one small population occurs in Washington; the others are along the Oregon coast. Habitat was assessed, as were management recommemdations that appear to be reasonable and implementable. Based on this work and the guidance in the recovery plan, the Service can now move ahead with a workable program to recover this species.

Region 2—The ocelot (*Felis pardalis*) survey initiated in south Texas in the autumn of 1981 has been expanded to include Laguna Atascosa National Wild-

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U.S. Fish and Wildlife Service
Washington, D.C. 20240

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

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RULEMAKING ACTIONS — October 1982

Monito Gecko Listed as Endangered

The Monito gecko (*Sphaerodactylus micropithecus*), a small lizard known only from tiny Isla Monito in the Commonwealth of Puerto Rico, has been listed as Endangered, and the uninhabited island has been determined Critical Habitat (F.R. 10/15/82). Predation by introduced rats is the main threat to the reptile.

Dr. Howard W. Campbell discovered the Monito gecko in May 1974, and gathered several specimens from which the species was described in 1977. During his 2-day visit to the island, Dr. Campbell observed a dense population of introduced black rats (*Rattus rattus*), and he expressed concern about their impact on two genera of lizards on Monito, *Ameiva* and *Sphaerodactylus*. Rats are known predators of lizards and their eggs.

In August 1982, personnel of the U.S. Fish and Wildlife Service and the Puerto Rico Department of Natural Resources conducted a survey to look for the Monito gecko. The entire island was covered thoroughly using transect techniques, and 18 geckos were discovered in two small populations. A total of 24 rats also was observed. The survey confirmed that geckos are indeed rare on Monito.

On October 22, 1980, the Service proposed listing the Monito gecko as Endangered and determining Isla Monito as Critical Habitat. Informal public meetings on the proposal were held in Mayaguez, Puerto Rico, on December 2, 1980, and in San Juan on December 3, 1980. A total of 12 comments were received. Governor Carlos Romero took no positon on the proposal, but the Puerto Rico Department of Natural Resources endorsed it. The U.S. Navy stated no objections, and indicated that the small island is not being considered for use in bombing practice like some other islands around Puerto Rico. Most of the other comments were supportive of the proposal. One individual did express opposition, asserting that the gecko's scarcity and danger from rat predation were not proved, although he acknowledged that he was not familiar with the gecko habitat or the ecology of Monito. In its response, the Service pointed out that the August 1982 survey, which was conducted to address these questions, left no doubt about the gecko's rarity.

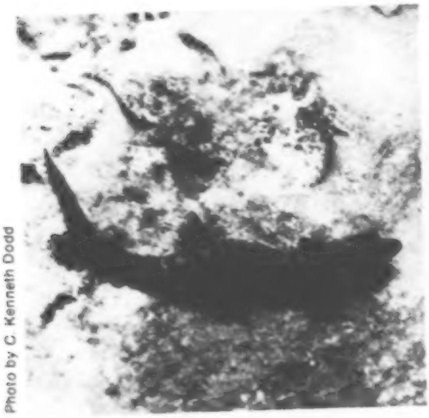

Photo by C. Kenneth Dodd

The Monito gecko is a grayish-brown lizard with dark spots, and a 1982 survey found individuals up to about 60mm in total length. It is endemic to tiny Monito Island.

Effects of the Rule

As an Endangered species, the Monito gecko will receive protection under Section 9 of the Endangered Species Act, including the prohibitions on taking, interstate trade, and import/export. Federal agencies are directed to insure that their actions will not degrade the gecko's Critical Habitat, as outlined in Section 7. The listed status also will authorize a recovery program, a significant part of which is expected to address rat predation on the lizard.

Monito is a very small (about 300 meters x 500 meters) island almost midway between Puerto Rico and the Dominican Republic. It is surrounded on all sides by nearly vertical cliffs which make the island virtually inaccessible. (The 1982 survey team had to be taken to the island by helicopter.) Monito is owned by the Commonwealth of Puerto Rico and managed as a seabird reserve. No federally authorized or funded development projects are planned for the island.

Two Small Mammals Under Status Review

The Service has accepted a petition to add the Perdido Key beach mouse (*Peromyscus polionotus trissyllepsis*) and the Choctawhatchee beach mouse (*Peromyscus polionotus allophrys*) to the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 10/6/82). The Service has determined that the petition presents substantial evidence warranting the listing of these two small mammals and now is assembling needed supporting information.

According to the petition, these two mammals occupy very restricted areas of dunes along the Gulf Coast of Alabama and Florida. Most suitable habitat has recently been lost because of residential and commercial development, beach erosion, and vegetation succession. Competition from introduced house mice (*Mus musculus*) and predation by domestic cats (*Felis catus*) also seems to be a problem.

The Perdido Key beach mouse originally occurred on much of Perdido Key, which extends along the Gulf Coast of Baldwin County, Alabama, and Escambia County, Florida. The Choctawhatchee beach mouse inhabited the Gulf Coast of Florida from the East Pass of Choctawhatchee Bay, Okaloosa County to Shell Island, Bay County. Remnant populations of beach mice are fragmented and declining. The total number of surviving individuals is estimated at only 78 for *P. t. trissyllepsis* and 515 for *P. t. allophrys*.

The petition to list these animals was submitted on June 9, 1982, by Dr. Stephen R. Humphrey, Associate Curator in Ecology, Florida State Museum, University of Florida, Gainesville, Florida 32611. The Service will issue a proposed rulemaking as soon as possible.

Recovery Meetings Held

Recovery plan coordinators from each of the Service's seven regions met October 26-27. Representatives from each of the Service's five bald eagle recovery teams also participated in a 2-day gathering, the Bald Eagle National Recovery Team Leaders' Meeting, on October 27-28. Both meetings were held in the Washington, D.C., area.

The recovery team coordinators discussed past recovery planning operations and procedures and explored areas of needed change. As a result of the meeting, revisions will be made in the recovery plan guidelines.

During the second meeting, the five plans developed for various U.S. geographical areas of bald eagle habitat were compared and contrasted in an effort to assure unity of approach to recovery activities. Other matters of significance which were discussed included the Departmental Solicitor's Opinion on the Bald Eagle Act, the feasibility of satellite telemetry, survey techniques and terminology, and the National Bald Eagle Color-Marking Protocol. The latter is being developed by the working group headed by Dr. Paul Frenzel of the University of Minnesota. On the second day of the meeting, the bald eagle team leaders met with the Service's regional recovery team coordinators to discuss the bald eagle plans in light of Service policy regarding implementation of the five plans.

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Tax Check-offs Bolster State Nongame Programs

Since 1977, 20 States have successfully passed income tax check-off legislation designed to raise funds for nongame wildlife conservation. In these States, taxpayers have the option of designating all, or part, of their tax refunds to a State fund earmarked for specific conservation needs.

Colorado passed the first nongame "check-off" bill in 1977 and has raised over $2.9 million during the 5 tax years that it has been in effect (1977-1981). Minnesota's check-off program began in 1980; during that year the State received $569,277—the largest amount received by any State in the first year of its program. (See accompanying chart for funding results in other States.)

Forty-nine States carry out some sort of nongame program within their respective wildlife agencies. Recently, many States have experienced budget cuts brought about by Federal and State fiscal cutbacks, and funding for many nongame programs has been greatly reduced. Consequently, the search for alternate funding sources has gained considerable impetus — 18 States have passed check-off bills during the past 3 years.

The State programs are not identical. Most are designed to create funds solely for nongame species conservation. Other programs, such as those in Louisiana, New Mexico, and New York, are established to benefit all wildlife, including nongame and endangered species. Kentucky's legislation provides that the tax refund proceeds be used both for nongame and habitat acquisition, whereas, Louisiana's funds are earmarked entirely for land acquisition.

Problems on the Horizon

The check-off programs are quite successful and are "turning the heads" of many special-interest groups. Feeling the squeeze of our nation's current economic situation, these groups, too, are anxious to get on the "check-off bandwagon." In fact, four States already have income tax check-off programs for causes other than wildlife conservation: Alabama has a fine arts fund; Arkansas, a fund to rebuild a football stadium; Idaho, an Olympic fund; and Oregon, a continuing arts fund.

States that already have programs are aware, of course, that multiple check-offs will dilute the funds now going to wildlife programs. States that are seeking programs fear that their respective legislatures will not be receptive to a wildlife check-off, anticipating the clamor from many other groups also wanting a tax check-off program. Rather than clutter the tax form with multiple check-off boxes, most legislators, they feel, will choose to deny all check-off seekers.

How, they ask, can State lawmaking bodies be convinced to say "yes" to wildlife check-offs and "no" to all others? Pennsylvania was recently successful in doing just that. Pennsylvania's legislation prohibits the establishment of any other check-off line on the State income tax form. Other States will probably be looking to Pennsylvania for advice.

Natural Resources — a Public Trust

The role of governments as public trustees in the task of wildlife conservation has been an integral part of U.S. Supreme Court decisions and of American wildlife laws since the late 19th century. Court actions have clarified the principle that wildlife is the collective property of all the people — not the private property of individuals or groups.

Picking up on this theme, Pennsylvania wildlife biologist, Jerry Hassinger, helped prepare the groundwork for his State's check-off program. Hassinger distributed letters to all State legislators, capsulizing the public trust concept and its foundation in American law and tradition. The letter promoted a wildlife check-off as unique from all other possible check-off programs. "Other causes," he said, "are not public trust resources to be passed on to future generations... Wildlife does not belong to any interest-specific public."

"It is certainly appropriate," Hassinger continued, "to use a public document—the state income tax form—to solicit donations for a public trust fund for the care and conservation of the public's *collective property*." Pennsylvania will collect its first-year funding in 1983—dollars from 1982 tax refunds.

Programs are Working

In several States, officials in the departments of revenue initially opposed the check-off concept, stating as their reason the administrative costs such programs would incur. However, most States have been pleasantly surprised by the low price ticket associated with their programs.

New Jersey, for instance, anticipated high administrative expenditures but had quite minimal expenses in 1982—along with great financial success. Utah's tax commission is handling the administration of their program without finding it necessary to assess the Nongame Wildlife Fund at all.

A number of States, including Arizona, Idaho, Kansas, Minnesota, New York, and South Carolina, have written their check-off legislation and have designed their tax form so that anyone — whether a refund is due them or not — can make a donation on their tax return. Persons with no refund can fill in an especially provided line and add any amount to "dollars owed" for the wildlife fund. Many other States have made it

Our State Bird is a Great State Bird... but it needs your help.
Give to the Nongame Wildlife Checkoff on your Minnesota Tax Forms
Saint Cloud Area

Tim Smalley, Minnesota Department of Natural Resources

Publicity materials for Minnesota's nongame wildlife check-off campaign include posters, television and radio public service announcements, informational cards, gummed labels for birdseed bags, and public service ads on milk cartons. These materials have helped generate more than $1 million in donations during the past 2 years.

possible to donate directly to the check-off fund by mailing a check payable to the various funds. In several States (Iowa and Kentucky) persons can donate to the check-off fund only if they have a refund.

The development of public relations materials has played an important role in the success of most of the State programs. Many States have developed tools such as radio and television spots, news releases, magazine and newspaper articles, slide/tape programs, and information cards to be tucked into correspondence and tax forms.

Idaho printed their check-off logo and information on their program on State hunting and fishing regulations. Minnesota negotiated with bird seed distributors to place gummed labels advertising their program on sacks of bird seed, and with local dairies to print the check-off logo on the sides of milk cartons. Minnesota also succeeded in getting the telephone company to use their logo and some check-off data to decorate the cover of their telephone books.

Oregon negotiated with the State government and with private businesses to insert information cards into employees' payroll check envelopes. Virginia was able to get private businesses to donate paper, and design, typesetting, and printing services to produce an endangered species booklet. The Department of Revenue in West Virginia incorporated the check-off into the tax preparation booklet issued in their State.

The U.S. Internal Revenue Service has been very helpful in providing to the States names of certified tax preparers. Many States contacted the tax preparers by letter and sent information about the check-off donation which is tax deductable during the next tax year for those itemizing deductions. Utah's Director of Internal Revenue also included an article on the check-off program produced by the Utah Fish and Game Department in the State's monthly bulletin to tax preparers.

The programs are proving to be unifying forces within conservation communities, appealing to the generosity of both hunters and non-hunters. Whereas hunters and anglers have for many years supported game management activities through sales taxes on support equipment and through license fees and stamps, the check-off program is the first vehicle to be established which allows non-consumptive wildlife "users" to contribute directly to wildlife conservation.

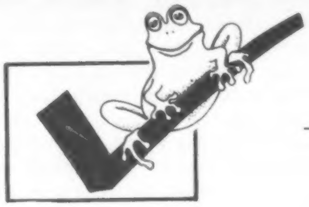

Illustration by Permission of New Jersey Nongame Wildlife Fund.

STATE INCOME TAX CHECK-OFF PROGRAMS

FUNDING RESULTS

States* with Programs	Year Bill Signed	Tax Year	Totals	Contributors	% of Persons Having Refunds Contributing	Average Contribution
Alabama	1982	----	----	----	----	----
Arizona	1982	----	----	----	----	----
Colorado	1977	1977	350,000	90,000	9.0%	$3.89
		1978	501,000	118,600	12.0%	4.22
		1979	647,200	129,300	11.9%	5.00
		1980	740,000	139,850	12.7%	5.30
		1981	692,000	124,000	12.4%	5.60
Idaho	1981	1981	102,500	22,000	----	4.43
Indiana	1982	----	----	----	----	----
Iowa	1982	----	----	----	----	----
Kansas	1980	1980	128,788	21,786	3.6%	4.87
		1981	130,193	----	----	---
Kentucky	1980	1980	85,619	13,611	1.2%	6.29
		1981	80,000	11,038	1.3%	7.20
Louisiana	1981	1981	344,198	35,858	2.5%	10.42
Minnesota	1980	1980	569,277	170,177	9.8%	3.39
		1981	624,899	195,503	11.4%	3.20
New Jersey	1981	1981	403,000	100,000	4.8%	4.05
New Mexico	1981	1981	256,000	24,000	4.6%	10.68
New York	1982	----	----	----	----	----
Oklahoma	1981	----	----	----	----	----
Oregon	1979	1979	347,000	94,848	11.5%	3.42
		1980	359,981	97,803	11.1%	3.68
		1981	272,152	65,916	8.1%	4.13
Pennsylvania	1982	----	----	----	----	----
South Carolina	1981	1981	100,000	20,500	2.0%	4.85
Utah	1980	1980	216,594	55,366	16.0%	3.91
		1981	204,726	47,942	14.1%	4.27
Virginia	1981	1981	371,000	61,692	3.4%	5.92
West Virginia	1981	1981	164,649	37,340	7.9%	4.41

Total Contributions for 1981 =$3,745,317

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* Delaware, Illinois, Maryland, Massachusetts, Michigan, Nebraska, and Wisconsin have all attempted to get check-off bills through their respective legislatures.

REGIONAL BRIEFS

Continued from page 2

life Refuge near Rio Hondo, Texas. Preliminary ocelot captures led to radio-collaring of an adult male, two adult females (one lactating), and a 7-pound female kitten. The capture efforts will continue and be expanded to other parts of the refuge during the remainder of 1982.

Little Creek, in the Gila Wilderness Area of New Mexico, was sampled during October to determine the success of the stream renovation carried out earlier this year. No salmonids were found, indicating the successful removal of exotic brown trout (*Salmo trutta*) and the effectiveness of the fish barriers. Gila trout (*Salmo gilae*) stocking is scheduled for November 1982.

Dexter National Fish Hatchery participated in the last 1982 stocking of razorback suckers (*Xyrauchen texanus*). About 13,000 were involved, bringing the year's total to over 600,000. In addition, Dexter supplied Region 6 with over 30,000 juvenile Colorado River squawfish (*Ptychocheilus lucius*) for stocking in the upper Colorado River Basin near Grand Junction, Colorado.

Technical review drafts of recovery plans for the following plants have been sent out for review: gypsum wild buckwheat (*Eriogonum gypsophilum*), Nichol's Turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii*), Brady pincushion cactus (*Pediocactus bradyi*), Knowlton cactus (*Pediocactus knowltonii*), Peebles Navajo cactus (*Pediocactus peeblesianus* var. *peeblesianus*), and the Mesa Verde cactus (*Sclerocactus mesae-verdae*).

Region 3—Endangered species staffers provided training on Section 7 consultation procedures to personnel at the Service's Ecological Services field stations.

Region 5—A new booklet, *New England's Rare, Threatened, and Endangered Plants*, is being finalized under the direction of regional endangered species botanist Richard Dyer. It will focus on 101 of the region's rarest plants, and will include detailed scientific illustrations, distribution maps, color plates, and species narratives. Details on availability and cost will be announced in next month's BULLETIN.

Another book, *Endangered and Threatened Wildlife of the Chesapeake Bay Region: Delaware, Maryland, and Virginia*, is now available (see advance anouncement in the July 1982 BULLETIN, "New Publications," for details on ordering). The 147-page book was a cooperative effort of the Chesapeake Bay Foundation and Region 5 personnel. Martha Carlisle Tacha and Andrew Moser of the Annapolis Field Office provided substantial information and editorial support.

Regional Endangered Species Specialist Paul Nickerson attended a peregrine falcon recovery meeting in Minnesota on September 22-23. Among the topics discussed were an expansion of the peregrine (*Falco peregrinus*) release program into other geographical regions as called for in the recovery plan.

Region 6—The greater Yellowstone Ecosystem Bald Eagle Working Team met in late August. Information collected by the team indicates that there were 38 occupied bald eagle territories in the ecosystem in 1982. Data from the 35 territories where production success was known show that 23 young fledged, which is 0.66 young per territory. The team intends to have a management plan drafted by December 1.

U.S. Fish and Wildlife Service Photo by Paul Gertler

A survey for the ocelot has been expanded to include Laguna Atascosa National Wildlife Refuge.

The Northern Grizzly Bear Ecosystems Steering Committee met in August. They approved a charter and elected Ed Schneegas, U.S. Forest Service, Missoula, Montana, as chairman. The group reviewed Priority 1 Recovery Tasks in the Grizzly Bear Recovery Plan, establishing research priorities for the northern ecosystems, and reviewed ongoing research projects.

Biologists with the Service's Colorado River Fishery Monitoring Program assisted with the microtagging of 31,000 young-of-the-year Colorado squawfish (*Pytchocheilus lucius*) produced at Dexter National Fish Hatchery in Region 2. About 30,000 of the fish were then transported in two trucks to Grand Junction, Colorado. About 10,000 squawfish were placed into each of two gravel pits for predation studies. The remaining 10,000 were released into four backwater areas of the Colorado River to obtain information on their movements.

The Peregrine Fund in Fort Collins, Colorado, induced 33 captive female American peregrine falcons (*Falco peregrinus anatum*) to lay 223 eggs in 1982. Of 125 (56 percent) which were fertile, 97 (78 percent) hatched and 85 (88 percent) of the chicks survived. The Fund also received 26 eggs from 7 peregrine eyries in Colorado. Of 22 (85 percent) which were viable, 20 (91 percent) hatched and 19 (95 percent) chicks survived. Of these, 86 were released in the wild in the following States: Colorado (49), Wyoming (14), Montana (8), Idaho (8), Utah (6), and California (1). These releases met the commitments established in the 1982 peregrine falcon reintroduction plan. Of the 86 released, 60 (70 percent) are known to have reached independence.

Region 7—Five recent peregrine falcon (*Falco peregrinus*) band encounters highlight this month's news from Alaska. A 1981 hatching-year (HY) American peregrine falcon (*F. p. anatum*) from an upper Yukon River eyrie was recovered in north-central Brazil in February 1982. A 1982 HY American peregrine from an eyrie along the Kuskokwim River was trapped by Ken Riddle in October 1982 at Padre Island, Texas. Also trapped by Riddle and his team were three 1982 HY Arctic peregrines (*P. f. tundrius*) from the Colville River system. These are the first Texas encounters from the Colville system since the Service began its peregrine banding program in 1979. The encounter from the Kuskokwim was the first ever from that region. In the past 5 years, Service biologists and contractors have banded 662 peregrines in Alaska and, to date, 22 encounters have been reported.

ACT AMENDMENTS

Continued from page 1

extension will be permissible only if there exists substantial disagreement among specialists regarding the sufficiency or accuracy of the required biological data. Extensions to allow additional time to conduct economic or other analyses relating to Critical Habitat designations are not permissible. A determination to withdraw a listing or delisting proposal will be subject to judicial review. Existing proposals are now treated as though proposed on October 13, 1982.

The new amendments restate the general requirement of concurrent listing and Critical Habitat designation but authorize listing without the latter in certain circumstances. If a Critical Habitat designation is found "not prudent," the listing can become final at any time during the new 1-year (or 18-month) period. When scientific and commercial information indicates that prompt listing of the species is essential to its conservation, but the analysis necessary to designate Critical Habitat has not been completed, the listing must be finalized within or upon expiration of the 1-year period (or the 18-month period) without designating Critical Habitat.

When Critical Habitat determinations have been deemed *not determinable* within the 1-year (or 18-month) period, the 1-year period may be extended by not more than 1 additional year. At the end of the second year or sooner, the species must be listed and Critical Habitat must be determined to "the maximum extent determinable." Revisions may be made as new information becomes available.

Consultation/Exemption Changes

Section 7 of the Act requires Federal agencies to use their authorities to conserve Endangered and Threatened species and prohibits them from taking actions that are likely to jeopardize the continued existence of such species or destroy or adversely modify their Critical Habitat. If a Federal agency determines that its activities may affect an Endangered or Threatened species, it must consult with the Fish and Wildlife Service (or with the National Marine Fisheries Service). This consultation is held to identify how the agency's activities would affect the species and, in cases where the activity is likely to jeopardize the species, to identify reasonable and prudent alternatives that would allow the activity to proceed without harmful consequences.

The 1982 Amendments provide a new component to the consultation process, allowing consultations between Federal agencies responsible for issuing permits or licenses for a project and the Service to be initiated at the request of prospective license or permit applicants. This provision will allow such applicants to receive the Service's biological opinion regarding their proposed activity earlier in the course of their planning. The amendments call for guidelines to be written by the Service which will define the types of projects eligible for early consultation and exclude projects of a speculative or tentative nature.

A written statement from the Service, received by the consulting agency and applicant promptly after the conclusion of the early consultation, will be viewed as the Service's biological opinion. This document will provide the same counsel as a biological opinion issued upon the completion of a consultation under Section 7(a)(2), provided the Secretary finds before the permit is issued that both the project and the available information remain essentially the same. Consultations initiated at the request of applicants will be concluded within a mutually agreed upon period of time.

The usual consultation process under Section 7(a)(2) is amended to allow an extension of the normal 90-day consultation period of up to 60 days without the agreement of any involved permit applicant. The Service must, however, notify the applicant in writing before the close of the 90-day consultation period, explaining the reasons for the extension, stating the information required to complete the consultation, and giving the estimated date for completion of the consultation. Extensions for longer than 60 days require the consent of any involved permit applicant. The 180-day period allowed for biological assessments under Section 7(c) may not be extended unless a written notice giving the reason for such an extension and an estimated length of the extension is presented to the applicant, if one is involved.

"The amendments give greater flexibility in the treatment of species that are introduced into areas outside their current range."

The amended Act allows permit applicants to enter the exemption process only after being denied a permit. Persons denied permits may seek administrative review of the denial prior to applying to the Endangered Species Committee for an exemption if they choose. However, an applicant denied a permit may not seek administrative review and begin the exemption process simultaneously.

Time-frames for the three stages of the exemption process have also been shortened. Threshhold findings made by the Secretary of the Interior (or Commerce) will be accomplished within 20 days of receiving the application; the report of the Endangered Species Committee within 140 days; and a final decision by the committee within 30 days after receipt of the report. The amendments also delete the requirement that representatives of the Endangered Species Committee be Presidential appointees subject to Senate confirmation.

When exemptions are sought, the Secretary that issued the biological opinion will provide a report to the Endangered Species Committee discussing the availability of reasonable and prudent alternatives to the action for which the exemption is sought and other considerations set forth in the law. To ensure that reports are nonbiased, a formal adjudicatory hearing will be held, conducted by an administrative law judge within the time-frame allocated for preparation of the report.

Amendments Offering Flexibility

The amendments give greater flexibility in the treatment of Endangered and Threatened species that are introduced into areas outside their current range. Regulations to further the conservation of each of these "experimental populations" will determine whether the population is *essential* to the continued existence of the species. If the population is determined to be *essential*, then it will be treated as a Threatened species and will receive all the protection afforded such species under the Act. If the population is determined to be *not essential*, the population will be protected in the same manner as species proposed for Endangered or Threatened status and will not receive the full protection of the Act unless it occurs on a National Wildlife Refuge or a National Park.

Another provision of the amendments allows for more flexibility in regulating the incidental taking of Endangered and Threatened fish and wildlife. Under the old Act, even though the Service issued a non-jeopardy opinion or a jeopardy opinion with reasonable and prudent alternatives, the taking of species incidental to the action consulted upon could still be considered a violation of the Act's taking provision [Section 9(a)(1)]. Under the new amendments, when a jeopardy or non-jeopardy opinion has

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ACT AMENDMENTS

Continued from page 7

been issued, the Service must provide the consulting Federal agency and the permit applicant with a written statement concerning incidental take on the species, the reasonable and prudent measures deemed necessary or appropriate to minimize such impact, and the terms, conditions, and reporting requirements to ensure that those measures are taken. If the action agency complies with these measures, the agency will not be held liable for any incidental taking that occurs.

In addition, the amendments establish a procedure whereby individuals whose actions may affect Endangered or Threatened species may receive permits for the incidental taking of such species, provided the action will not jeopardize the continued existence of the species. This provision addresses the concerns of private landowners who are faced with having otherwise lawful actions not requiring Federal permits prevented by Section 9(a)(1) prohibitions against taking.

> **"Changes affecting the listing . . . of species are intended to ensure that decisions are based solely upon biological criteria."**

The new amendments authorize the Service to permit any taking otherwise prohibited by Section 9(a)(1)(B) of the Act if the taking is incidental to, and not the purpose of, an otherwise lawful activity. Applicants for such permits must submit a conservation plan that specifies the impacts which will likely result from such taking, what steps the applicant will take to minimize and mitigate those impacts, what other alternatives that would not result in the taking were analyzed, and why these alternatives were not adopted. The decision whether to grant a permit or not will be based on whether the taking will appreciably reduce the likelihood of the survival and recovery of the species in the wild.

Conservation plans developed in compliance with the above provision would be developed jointly between the appropriate Federal wildlife agency and the private sector or local or State government agencies. This provision is modeled after a habitat conservation plan that has been developed by three Northern California cities, the County of San Mateo, and private landowners and developers to provide for the conservation of the habitat of three Endangered species and other unlisted species of concern within the San Bruno Mountain area of San Mateo County.

Section 9(a)(2)(B) of the Act is added, to provide a taking prohibition for Endangered plants on Federal land, whose removal and reduction to possession is now prohibited without permit.

Other Amendments

Other 1982 amendments affect the United States' implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Section 8A of the Act now clarifies that the Secretary is required to base export determinations upon the best available biological information derived from professionally accepted practices used in wildlife management and that population estimates are not required as part of the data needed by the Service to authorize export of Appendix II species. This change overrules the decision of the U.S. Court of Appeals for the District of Columbia in *Defenders of Wildlife, Inc. v. Endangered Species Scientific Authority*, 659 F. 2d 168 (D.C. Cir. 1981). The Amendments abolish the International Convention Advisory Commission, and specify that if the United States delegation to CITES votes against the inclusion of a species in Appendix I or II, but the listing occurs, the Secretary of State must submit a report to Congress in the event that no reservation is entered by the United States.

The Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere is much more fully implemented by Section 8A(e) of the new amendments. In particular, steps are required in developing personnel resources and programs, and in conservation of migratory birds and wild plants. By October 1985, a report to Congress is required on the steps that have been taken in this regard, and identifying actions still necessary for comprehensive implementation of the Western Hemisphere Convention.

A change in Section 9 of the Act clarifies the scope of raptor exemptions, making it clear that raptors are not exempt from CITES regulations. An amendment to Section 10 changes the time frame for antique exemptions from "made before 1830" to "not less than 100 years old." With the new language, the Act now conforms to existing custom tariff regulations.

Section 11 of the old Act authorizes the seizure and forfeiture of any fish or wildlife or plant that has been imported in violation of the law. Under the new amendments, however, if no indication of fraud, negligence, or intent to violate the law exists, certain non-commercial transshipments of fish or wildlife will be considered lawfully imported. Such exceptions do not authorize the importation for purposes of processing wildlife products or mounting of trophies in the United States and subsequent exportation without proper permits. Rather, they simply allow passage through the United States of noncommercial imports when these objects were lawfully exported from the country of origin and of re-export, and when they may be lawfully imported into the country of destination. Passage through the country is also allowed when the exporter or owner gave explicit instructions or did all that could have reasonably been done to prevent transshipment through the United States. Other new law enforcement provisions allow the Attorney General the authority to seek injunctive relief under Section 11 of the Act. The citizen suit provisions of the Act were amended to authorize actions against the Department of the Interior (or Commerce) for failure to perform the acts and duties that are imposed by Section 4, as amended.

Other amendments include 1) a resolution of conflict between two Federal circuit court opinions regarding the applicability of the prohibition of Section 9 of the Act to pre-Act wildlife held in the course of a commercial activity after December 28, 1973, and 2) the substitution of the word "recreational" for the word "sporting" in the summary of factors that are to be considered under Section 4 of the Act when determining whether a species is Endangered or Threatened.

Appropriations

The new legislation authorizes appropriations through fiscal year (FY) 1985 for the Departments of the Interior, Commerce, and Agriculture. These appropriations are not to exceed an annual $27 million, $3.5 million, and $1.85 million, respectively. Appropriations for cooperative agreements with the States (Section 6) were also authorized through FY 1985 not to exceed $6 million annually. Appropriations of the Western Hemisphere Convention [Section 8A(e)] were also authorized through FY 1985, at a 3-year total of $600,000.

CITES NEWS -
October 1982

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director—Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S. Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

Ginseng Export Findings Announced

The Service announced final findings on the export of American ginseng (*Panax quinquefolius*) taken in the 1982-84 harvest seasons (F.R. 10/4/82). Findings were made on a State-by-State basis.

Guidelines used this year in determining if exports will be detrimental to the survival of the species are identical with those used last year. Findings were issued for some States for a 3-year period.

The Service strengthened the "Certification of Legal Take" requirement for ginseng moved from the State of origin. Recognizing that certain States might not be able to implement such a certification program this season, the Service will accept, for the 1982 harvest season only, other forms of State certification that were approved for the 1981 harvest season.

On the grounds that both Scientific Authority and Management Authority criteria have been met, export of ginseng lawfully taken during the 1982-84 seasons has been approved from Georgia, Kentucky, Minnesota, North Carolina, Vermont (artificially propagated only), and Virginia. The Service approved export of ginseng lawfully taken during the 1982 (only) season from Arkansas, Illinois, Indiana, Iowa, Maryland, Ohio, Missouri, Tennessee, West Virginia, and Wisconsin.

Beginning with the 1983 harvest season, all States seeking export approval for wild or cultivated American ginseng will be required to have a legally mandated ginseng inspection and certification program.

Alaskan, Pacific Coast Peregrine Recovery Plans Approved

The Service recently approved the last two in a series of four recovery plans to help restore United States populations of the peregrine falcon (*Falco peregrinus*). The Alaskan Population Peregrine Falcon Recovery Plan and the Pacific Coast American Peregrine Falcon Recovery Plan were signed by the Director last month; plans for the Rocky Mountain/Southwest population (1977) and the Eastern population (1979) were approved earlier.

The most significant factor influencing the decline of peregrines, both in Alaska and along the Pacific coast, was undoubtedly the use of organochloride pesticides, especially DDT and its principal metabolite DDE. DDE causes eggshell thinning resulting in egg breaking during normal incubation or embryo deaths. Eggshell thinning substantially lowered the breeding success of the peregrine and led to the listing in 1970 as Endangered of two United States subspecies, the Arctic peregrine falcon (*F. p. tundrius*) and the American peregrine falcon (*F. p. anatum*).

Both listed subspecies occur in Alaska, *F. p. tundrius* in the tundra region and *F. p. anatum* in the boreal forest region of the State. Since 1977, numbers in the tundra population have increased and reproduction has improved. However, no more than 60 percent of the historical sites in the tundra area have been reoccupied and production has remained low. Past trends and current status of boreal peregrines have varied from area to area, declines being less severe on the Yukon River, for example, than on the Tanana River. Current trends are generally favorable for the boreal population.

The Pacific coast population includes peregrines found in California, Nevada, Oregon, and Washington with California hosting by far the largest number of birds. Until 1950, California peregrine reproduction was generally successful but, between that time and 1970, the population had dwindled to only 2 confirmed active sites and probably not more than five active pairs. Recent data indicate that 50 to 60 pairs occur in the State—a rise in numbers due both to increased field observation and limited recovery of the population.

In spite of intense searches in Nevada, only one peregrine adult has been observed there recently during the breeding season. There have been several reports of active eyries in the Cascade Mountains and in eastern Oregon, but only one active site has been documented in recent years. In Washington, only three sites were known to be occupied in 1980 and 1981.

The objective of both recovery plans is to restore the peregrine to a secure status throughout its former range and, ultimately, to consider the species for delisting. Recovery actions for both populations will include the study of habitat needs and habitat protection; monitoring of population trends; monitoring of pesticide levels in principle prey species; and public information/education programs. The Pacific coast plan calls for the establishment of potential nesting locations. The Alaskan plan calls for the exploration of artificial restocking, to be employed only if natural production is insufficent to recover the species.

Implementation of the two plans will be initiated by the Service's Portland Regional Director and the Alaska Regional Director. Further information on these plans can be obtained by contacting the endangered species staffs of the regional offices.

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U.S. Fish and Wildlife Service Photo by Tom Smylie

Reduced to precarious lows, the American and Arctic peregrine falcons were listed for protection as Endangered species in 1970, when the effort to assist their recovery was begun in earnest.

More Recovery Plans Approved

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Three more recovery plans, the Puerto Rico Plain Pigeon Recovery Plan, the Painted Snake Coiled Forest Snail Recovery Plan, and the 'Alala Recovery Plan were approved by the Service last month. Implementation of the first two plans will be initiated by the Service's Atlanta Regional Director and the third by the Portland Regional Director. For further information about the plans, contact the endangered species staff of the respective regional office.

Puerto Rican Plain Pigeon

Little is known about the historic range and abundance of the Puerto Rican plain pigeon (*Columba inornata wetmorei*). Available literature indicates that the species was probably abundant in Puerto Rico at one time, and that habitat destruction and shooting are the probable reasons for its decline.

The only confirmed populations of the species now occur in the municipality of Cidra and surrounding municipalities in east-central Puerto Rico. Current estimates (March 1982) are that 75-85 pigeons still occur in the Cidra-centered population. Continued habitat destruction and disturbances to the nesting birds are likely to further limit pigeon population increases at Cidra and the surrounding areas.

The Puerto Rican plain pigeon is a large bird (38 cm; 15 in), about the same size as a domestic pigeon (*C. livia*). At a distance the species appears pale blue-gray. The species is called "paloma boba" ("fool pigeon") in Cuba because of its lack of wariness. Because of this quality, and also because it sometimes nests in loose colonies, the bird is quite vulnerable to hunting. Despite a Commonwealth regulation (1967) closing the municipality of Cidra to hunting, plain pigeons are still being shot.

Recovery plan goals include the establishment of a minimum of two distinct wild Puerto Rican plain pigeon populations, each consisting of at least 250 nesting pairs, and the securing of the existing pigeon habitat of the Cidra-centered population. After these goals have been achieved, the plain pigeon could be considered for delisting.

U.S. Fish and Wildlife Service Photo

The decline of the Puerto Rican plain pigeon came in the early nineteenth century, at a time of almost total habitat destruction in Puerto Rico. Poorly regulated hunting probably occurred and contributed to the rate of decline.

Painted Snake Coiled Forest Snail

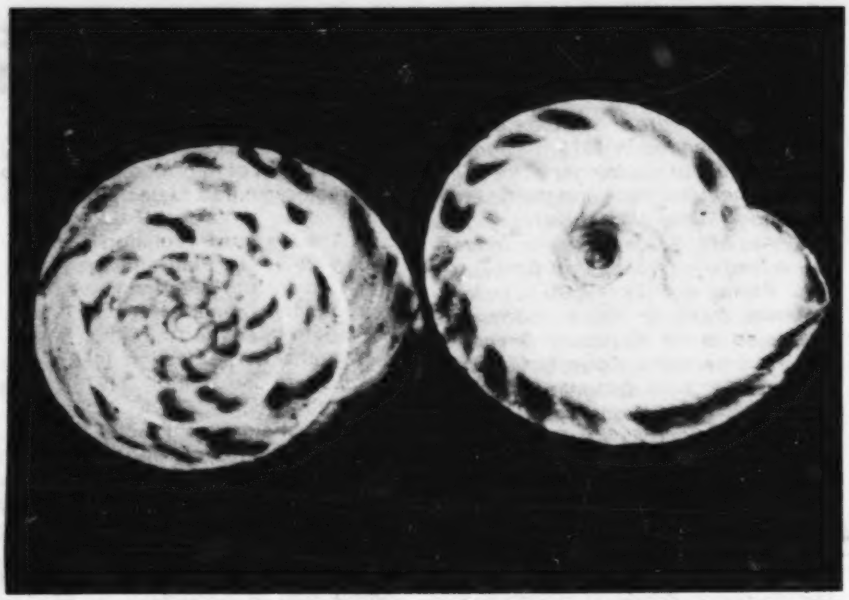

Photo by Amy Shrader Van Devender

Adult *Anguispira picta* range from 17-21 mm in width and 9-10 mm in height, and have six whorls. This snail in considered to be the most distinctly marked and richest in coloring of all *Anguispira* species.

The painted snake coiled forest snail (*Anguispira picta*) is a geographically restricted species of a widespread and quite successful land snail genus. It was discovered in 1906 (Clapp, 1930) at Buck Creek Cove, Franklin County, Tennessee, and apparently has not been reported from any other locality.

It is considered threatened because of its limited known habitat and because the entire habitat could be easily destroyed by lumbering, forest fires, or quarrying. Information on the species' ecology and history is almost completely lacking. It is believed to live only on limestone outcrops in areas of the cove having sufficient forest cover to maintain high moisture conditions. It seems to feed on lichens growing on the rock faces.

1974 studies on the species reported the snail to be restricted to areas of the cove between 750-800 feet in elevation. Later studies, however, show that the snail is not nearly as restricted in elevation as previously thought. The now known appropriate habitat, which includes elevations up to 1500 feet, covers about 324 acres. The 1974 studies estimated the snail population at 2000 individuals; the actual population may be 10 or more times that numerous. A survey of undisturbed areas within Buck

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Recovery Plan Update

The following recovery plans have been approved by the Director, but have not yet been featured in the BULLETIN: Eastern Cougar Recovery Plan (8/2/82), Mexican Wolf Recovery Plan (8/9/82), Desert Slender Salamander Recovery Plan (8/12/82), Morro Bay Kangaroo Rat Recovery Plan (8/18/82), and Oregon Silverspot Butterfly Recovery Plan (9/22/82). A story on each plan will be included in coming issues.

Updated Microfiche of BULLETIN, Recovery Plans Available

Microfiche copy of the *Endangered Species Technical Bulletin* (July 1976–June 1982) is available from the Fish and Wildlife Reference Service in Denver, Colorado, for $3.00 per set. Back issues of the BULLETIN are also available and will be sent free of charge upon request for as long as the supply lasts. Please state clearly which "hard copy" issues (month and year) you wish to receive and/or send money for microfiche copy to Fish and Wildlife Reference Service (FWRS), Unit i, 3840 York Street, Denver, Colorado 80205 (800/525-3426).

FWRS is also the official supplier of all the Service's approved endangered species recovery plans. FWRS does not have standing inventories of the printed recovery plans; all orders for plans are filled with photocopy or microfiche duplicates made on demand. Fees (as indicated below) are charged for every order received. (The *Cooperator Discount* does apply to recovery plan orders.)

A four-to-six-month printing time must be allowed following the date a recovery plan is approved by the Director; please understand that you might experience a delay when ordering newly approved plans. Orders should be placed with FWRS at the above address.

TITLE /region/	PAPER COPY	MICROFICHE
Aleutian Canada Goose /1/	$ 4.10	$ .50
American Crocodile /4/	$ 3.00	$ .50
Arizona Trout /2/	$ 4.20	$ .50
Black-footed Ferret /6/	$15.70	$ 2.00
Blue Pike /5/	$ 5.90	$ .50
Blunt-nosed Leopard Lizard /1/	$ 9.30	$ 1.00
California Condor (revised) /1/	$ 8.10	$ .50
California Least Tern /1/	$ 6.40	$ .50
Clay Phacelia /6/	$ 1.90	$ .50
Clear Creek Gambusia /2/	$ 3.70	$ .50
Colorado River Squawfish /6/	$ 6.90	$ .50
Columbian White-tailed Deer /1/	$ 7.00	$ .50
Comanche Springs Pupfish /2/	$ 3.10	$ .50
Cui-ui /1/	$ 6.10	$ 1.00
Delmarva Fox Squirrel /5/	$ 3.10	$ .50
Devil's Hole Pupfish /1/	$ 7.50	$ .50
Dusky Seaside Sparrow /4/	$ 2.10	$ 1.00
Eastern Brown Pelican /4/	$ 5.20	$ .50
Eastern Timber Wolf /3/	$10.20	$ 1.50
Florida Panther /4/	$ 3.80	$ .50
Gila Trout /2/	$ 5.10	$ .50
Greenback Cutthroat Trout /6/	$ 3.00	$ .50
Grizzly Bear /6/	$20.30	$ 1.50
Hawaiian Waterbirds /1/	$12.50	$ 1.50
Humpback Chub /1, 2, 6/	$ 7.40	$ .50
Indiana Bat /3/	$10.60	$ 1.00
Key Deer /4/	$ 5.60	$ .50
Kirtland's Warbler /3/	$ 8.90	$ 1.00
Light-footed Clapper Rail /1/	$ 5.60	$ .50
Maryland Darter /5/	$ 2.30	$ .50
Masked Bobwhite /2/	$ 3.20	$ .50
Mississippi Sandhill Crane /4/	$11.40	$ 1.00
Mississippi Sandhill Crane (revision) /4/	$ 2.70	$ .50
Northern Rocky Mountain Wolf /1/	$ 7.20	$ .50
Okaloosa Darter /4/	$ 2.30	$ .50
Palila /1/	$ 5.00	$ .50
Pahrump Killifish /1/	$ 4.80	$ .50
Peregrine Falcon (East) /3,4,5/	$15.40	$ 1.00
Peregrine Falcon (West) /6/	$19.20	$ 1.50
Plymouth Red-Bellied Turtle /5/	$ 1.90	$ .50
Red-cockaded Woodpecker /4/	$ 4.50	$ .50
Santa Cruz Long-toed Salamander /1/	$ 5.40	$ .50
Socorro Isopod /2/	$ 2.00	$ .50
St. Croix Population of the Leatherback Turtle /4/	$ 2.40	$ .50
Southern Sea Otter /1/	$ 7.00	$ .50
Unarmored Threespine Stickleback /1/	$ 6.30	$ .50
Virginia Round-leaf Birch /5/	$ 6.70	$ .50
Warm Springs Pupfish /1/	$ 2.70	$ .50
Watercress Darter /4/	$ 2.70	$ .50
West Indian Manatee /4/	$ 3.80	$ .50
Whooping Crane /2/	$21.40	$ 1.50
Woundfin /2/	$ 7.10	$ .50

RECOVERY PLANS

Continued from page 10

Creek Cove revealed several size classes of snails (from 20mm down to 4mm) indicating that reproduction has been occurring and the present existence of a viable populations.

Immediate dangers to the species are those threats to its small, specialized habitat. Unless significant populations of *Anguispira picta* are found outside Buck Creek Cove and preclude the need for further protection of the species, a number of recovery goals would need to be met before this population could be considered recovered. The actions, listed in the recovery plan, include habitat protection, population monitoring, plans for continued periodic monitoring, and the control of collecting for scientific or other purposes

'Alala (Hawaiian Crow)

The recovery plan for the 'alala or Hawaiian crow (*Corvus tropicus*) is designed to identify the requirements for promoting the recovery of the species. The bird has not been studied in detail and there are many unknowns regarding its behavior, population structure, habitat requirements and needs for survival.

Within historic times the 'alala has lived only on the Island of Hawai'i, and as a breeding bird has been restricted to the forest of the western and southern sectors of the island. Around 1900 the 'alala apparently still occupied all of its originally known range and was described as "numerous." By the 1930's and 1940's it was greatly reduced in numbers. Recent surveys indicate an apparently discontinuous 'alala population distribution involving up to four subpopulations of breeding pairs. The

Continued on page 12

RECOVERY PLANS

Continued from page 11

total population is probably about 130 birds.

Land settlement in the Kona Districts and subsequent conflict with farmers' interests have been cited as a cause for the decline of the 'alala. No single factor, however, is totally responsible. Forest fires have reduced habitat available to breeding pairs and have reduced the availability of foods customarily used by the 'alala. Even today there are undoubtedly instances of shooting of this species. Introduced rats, mongoose, feral cats and dogs, as well as the Endangered 'io or Hawaiian hawk (*Buteo solitarius*) have been suggested as possible predators on the 'alala or its eggs and young. The occurrence or extent of such predation is, however, generally undocumented.

Recent studies indicate that the productivity of the 'alala is low, averaging 0.5 to 0.9 birds fledged per nest. Post fledging survival (2 weeks) is even lower.

While long term management cannot be a major part of this recovery plan, it recognizes that all attempts must be made to reduce disturbances to nesting birds, to maintain habitat suitability, and to determine the impact of avian diseases on both adult and nesting 'alala. The plan calls for supplementing the wild population to a minimum level of over 400 birds. At this population level, the species could probably sustain itself naturally without intensive management.

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	U.S. & Foreign	Foreign Only	THREATENED U.S. Only	U.S. & Foreign	Foreign Only	SPECIES* TOTAL
Mammals	15	18	223	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	8	6	55	8	4	0	81
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	1	0	0	3
Insects	7	0	0	4	2	0	13
Plants	55	2	0	8	1	2	68
TOTAL	198	44	444	47	7	24	764

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 3 animals
6 plants

Number of Critical Habitats listed: 53
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 69
Number of Cooperative Agreements signed with States:

38 fish & wildlife
11 plants

October 31, 1982

New Publications

Why Save Endangered Species? is now available from the Publications Unit, U.S. Fish and Wildlife Service, Washington, D.C. 20240. This 8-page illustrated (black and white) pamphlet is free.

The Proceedings of the Freshwater Mussels Workshop, held in St. Louis, Missouri, October 26-27, 1982, will soon be available. Major topics discussed at the meeting included techniques for impact assessment, habitat creation, relocation to new areas, and the collection and identification of common and endangered mussels. Copies of the proceedings may be requested by writing Andrew C. Miller, Research Limnologist, Waterways Experiment Station, Corps of Engineers, P.O. Box 631, Vicksburg, Mississippi 39180.

Call for Papers

A Snag Habitat Management Symposium will be held June 7-9, 1983, in Flagstaff, Arizona. This notice is a call for papers (15 minutes) relating to: 1) history and policy, 2) current and new research, or 3) management practices. A field trip is being planned during the last afternoon. Abstracts are due by February 15, 1983. Refer questions and send abstracts to Jerry W. Davis, Program Chairperson, Tonto National Forest, P.O. Box 29070, Phoenix, Arizona 85038 (602/261-4229).

November 1982 Vol. VII No. 11

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Technical Bulletin
Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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ENDANGERED SPECIES

Technical Bulletin

Department of Interior. U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

San Francisco Peaks Groundsel Proposed as Threatened

The San Francisco Peaks groundsel *(Senecio franciscanus)*, an alpine plant known only from one small area in the mountains north of Flagstaff, Arizona, has been proposed by the Service for listing as a Threatened species (F.R. 11/22/82). A Critical Habitat determination for the plant also was proposed. The main threat to the species is trampling from off-trail hiking.

Background

Senecio franciscanus was discovered by Edward L. Green in 1884. It is a dwarf alpine species, 3.2 to 10.2 cm tall, with deeply lobed leaves and small yellow flowers. The one known population is locally common within a total area of less than 2.6 square km between Humphreys and Agassiz Peaks, part of the San Francisco Peaks region of Coconino National Forest. This plant occurs on loose cinder talus slopes over 3,000 m in elevation as a primary successional species.

Very serious disruption to the plants and their habitat occurs when off-trail hikers cross or descend the mountain peaks over the loose talus slopes. A series of numerous parallel paths have been worn along the top and western face of Humphreys peak, destroying all vegetation in their way. The proposed expansion of the Snow Bowl ski area (a private concession on Forest Service land) could affect the habitat of *Senecio franciscanus* through increased numbers of hikers using the trail system. A small percentage of the habitat already has been destroyed by construction of the existing chair lift. Whether or not expansion of the ski area will have a serious detrimental effect on the species depends on the care taken to minimize such effects.

Senecio franciscanus was first proposed for listing in June 1976, along with about 1,700 other plants identified on a petition by the Smithsonian Institution. In accordance with the listing schedule deadlines imposed by the 1978 Amendments to the Endangered Species Act, the proposal was withdrawn in 1979. A 1980 status report, along with investigations carried out by Fish and Wildlife Service and Forest Service personnel, confirmed the threats to the species. The Service was again petitioned to list *Senecio franciscanus* on June 18, 1980, this time by the Navajo Medicinemen's Association.

Photo by Rusty Kologiski

The San Franciso Peaks groundsel (Senecio franciscanus) *is threatened by trampling from off-trail hiking.*

Effects of the Proposed Rule

Under Section 7 of the Act, Federal agencies are required to insure that any actions they fund, authorize, or carry out are not likely to jeopardize the continued existence of a listed species or adversely modify its Critical Habitat. The potential effects on the Forest Service of the proposed rule have already been discussed with that agency, and it supports the listing of *Senecio franciscanus*. Forest management within the proposed Critical Habitat is not expected to be affected in a major way. The private company which operates the ski concession has no facilities in the area, and will not be affected.

The Forest Service has full responsibility for the trails within the proposed Critical Habitat. Development of a management plan would aid habitat conservation by regulating off-trail hiking in the area and by monitoring the plant's population status. Management might include eliminating some existing multiple trails, routing new trails away from the population sites, or posting signs prohibiting off-trail hiking. Such measures are expected to require minimal expenditures by the Forest Service.

Under Section 9(a)(2)(B) of the Act, as amended in October 1982, it is unlawful to remove and reduce to possession Endangered plants from Federal lands. Section 4(d) allows for extending such prohibitions to Threatened species through regulations. Once new regulations are developed, this new provision will apply to *Senecio franciscanus*, in addition to the general prohibitions on interstate trade and import/export.

Public Comment Requested

Comments on the proposed rule are requested from all interested persons, organizations, and agencies, and should be received by the Regional Director, U.S. Fish and Wildlife Service, P.O. Box 1306, Albuquerque, New Mexico 87103, by January 21, 1983.

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Malheur Wire-Lettuce Listed With Critical Habitat

A rare southeastern Oregon plant, *Stephanomeria malheurensis* (Malheur wire-lettuce), was listed under the Act as Endangered (F.R. 11/10/82). In addition, Critical Habitat has been determined for this species.

The single known population of the plant, found on 70 acres of Bureau of Land Management (BLM) land in Harney County near the Malheur National Wildlife Refuge, is vulnerable to any substantial habitat alteration. Recently established mining claims that include the habitat of *S. malheurensis* hold potential threat for the plant. However, the Anaconda Minerals Company, which holds mining rights in the entire Critical Habitat area, has indicated its willingness to cooperate with the Service to conserve the species. The company has further indicated that mining

Continued on page 7

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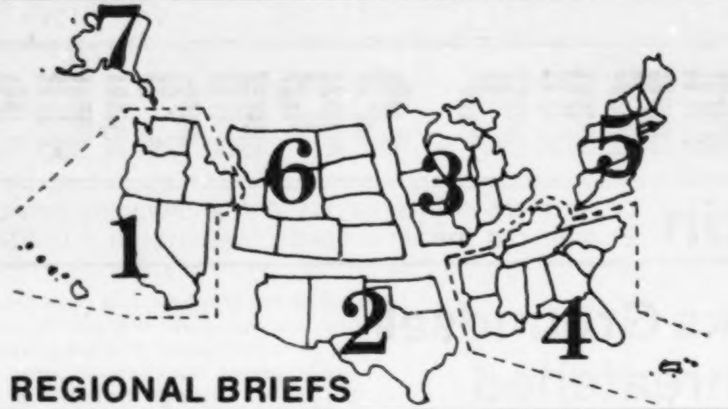

REGIONAL BRIEFS

Endangered Species Program regional staffers have reported the following activities for the month of November:

Region 1—Aleutian Canada goose (*Branta canadensis leucopareia*) monitoring was initiated on the Oregon coast through a cooperative effort and funding between Region 1, Research, Siuslaw National Forest and the Oregon Department of Fish and Wildlife. This monitoring supports State and Federal Canada goose hunting closures in two Oregon coastal areas to protect the Endangered Aleutian subspecies during its fall migration to California.

Region 4—The Agency Review Draft of the Green Pitcher-Plant (*Sarracenia oreophila*) Recovery Plan has been completed as stipulated in the court-ordered stay issued by U.S. District Judge U.W. Clemon on November 6, 1981. A 1-year stay in the litigation, *DeKalb County Commission v. Watt*, was granted in order to provide for the establishment of a recovery team and the development of a recovery plan. Recovery actions identified in the plan are geared toward the protection and management of selected extant colonies, efforts to re-establish and manage selected extirpated sites, and transplantation experiments.

Seven young-of-the-year Mississippi sandhill cranes (*Grus canadensis pulla*) produced at the Patuxent Wildlife Research Center are now being held in temporary holding facilities at the Mississippi Sandhill Crane National Wildlife Refuge in Jackson County, Mississippi. The cranes, received on October 21, have been fitted with radio transmitters and will be held until they appear to be well acclimated to their new environment. Current plans indicate a possible release sometime toward the end of November or the first part of December. Exposure and interactions between these new birds and native cranes, as well as those released 2 years ago, have already been noted by refuge personnel. Once released, the movements and behavioral characteristics will be monitored by a graduate student from the Louisiana Cooperative Wildlife Research Unit. This effort, the third straight year that birds from Patuxent have been released on the refuge, is geared toward augmenting the natural population (which now numbers between 30-50) and providing valuable information concerning habitat utilization and movement.

In July of this year, a new maternity colony of the Endangered gray bat (*Myotis grisescens*) was discovered near the Buffalo River National Park in Marion County, Arkansas. The cave, harboring a colony of approximately 10,000 adult female bats, has been tentatively named "Eureka Cave."

New Mammoth Cave in Campbell County, Tennessee, has been gated to prevent human disturbance of hibernating Indiana bats (*Myotis sodalis*). This project was a cooperative effort involving the cave owner and many volunteers who assisted in constructing the gate.

A pair of bald eagles (*Haliaeetus leucocephalus*) nested this year on the White River National Wildlife Refuge. Although eagles have continued to winter in Arkansas, this is the first time that eagles have nested in the State since 1952. The pair successfully fledged one eaglet in late July. Meanwhile, the State of Arkansas Game and Fish Commission has successfully completed its first attempt at hacking eagles. Two young eagles obtained from Minnesota and Wisconsin were successfully released from their hacking site near the Buffalo River this summer, after being main-

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U.S. Fish and Wildlife Regions

Region 1: California, Hawaii, Idaho, Nevada, Oregon, Washington, and Pacific Trust Territories. **Region 2:** Arizona, New Mexico, Oklahoma, and Texas. **Region 3:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. **Region 4:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. **Region 5:** Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. **Region 6:** Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. **Region 7:** Alaska.

The ENDANGERED SPECIES TECHNICAL BULLETIN is published monthly by the U.S. Fish and Wildlife Service. Department of the Interior, Washington, D.C. 20240.

Plans for Two Butterflies, Puerto Rican Parrot Approved

The following are summaries of recovery plans that were recently approved: Oregon Silverspot Butterfly Recovery Plan (9/22/82), Schaus Swallowtail Butterfly Recovery Plan (11/18/82), and Puerto Rican Parrot Recovery Plan (11/30/82).

Oregon Silverspot Butterfly

The Oregeon silverspot butterfly *(Speyeria zerene hippolyta)*, or Hippolyta silverspot, is a Threatened subspecies of fritillary (silverspot) butterfly endemic to a few sites along the Washington/Oregon coastal zone. Of 17 historically known populations once distributed along the coast from Rock Creek/Big Creek, Oregon, to Westport, Washington, only 6 have been documented in recent years and 3 of these consist of only a handful of individuals on deteriorating habitat. Most of the field data on this butterfly have been collected by Dr. David McCorkle and Dr. Paul Hammond, who have been studying it for more than 10 years.

The Oregon silverspot is a medium-sized, orange and brown butterfly with black veins and spots on the dorsal wing surface, and with a yellowish submarginal band and bright metallic silver spots on the ventral wing surface.

Photos by David McCorkle

The Oregon silverspot is highly specialized and depends for its survival on salt-spray meadows, a habitat type that has never been common within the species' range. Due to habitat modification by human uses of the coastal areas, only three viable populations are still known to occur. One is at the mouths of Rock Creek and Big Creek in Lane County, Oregon. A second population is found at Cascade Head on a Nature Conservancy preserve, and the third is at the meadows of Mount Hebo; both the second and third populations are in Tillamook County, Oregon. (The third site is about 12 miles inland but has ecological characteristics that are analogous to the salt-spray meadows of the immediate coast.)

The habitat element most important to the Oregon silverspot is the western blue violet (*Viola adunca)*, which is normally the only plant on which butterfly larva can successfully feed and develop. Although the salt-spray meadow is important as the nursery area for the butterfly, it is a rather harsh environment for the adults. Upon emergence as adults, they generally move out of the meadows into the fringe of conifers or brush where there is shelter for more efficient heat conservation and nectar-gathering flights. This sheltered area also may be used for courtship and mating.

The loss of suitable habitat is unquestionably the main reason for the current Threatened status of the Oregon silverspot. Seaside meadow sites have been used for residential and business developments, lawns, parking, and recreation, along with excessive grazing and off-road vehicle travel. Secondary impacts include the introduction of exotic plants and suppression of naturally occurring fires (which results in succession of the salt spray meadows to brush and stunted woodland).

Initial recovery efforts will be oriented toward conserving the current viable populations and rehabilitating their deteriorating habitat. Additional research on the ecology of the Oregon silverspot will be necessary in order to develop long-term management plans for the butterfly and its habitat. Determining the number of populations and/or the amount of habitat necessary to insure the long-term survival of the butterfly will be key parts of the overall recovery program. Existing habitat should be protected from further degradation, an objective that may involve habitat manipulation to prevent succession of the meadows to brushfields. Controlled burning, scarification, chemical treatment, or other land management techniques could be used if it is determined that they would not have any detrimental side-effects on the butterfly or its habitat. It is important that the use of herbicides and insecticides, which could have an obvious potential impact on the butterfly and its habitat, be carefully regulated. Growth of the violet *(V. adunca)* and some of the desirable nectar plants should be encouraged, and exotic plants found harmful to the habitat should be controlled.

Once these objectives are achieved, reintroduction and establishment of additional populations on secure habitat can be explored. A major effort by all those involved in the recovery program, including the Fish and Wildlife Service, Forest Service, Department of Defense, The Nature Conservancy, and other participants, will be necessary to insure consideration of the butterfly in resource planning for public lands. Although the long-term status of the species and its habitat on private lands is not well understood, these lands do hold promise as key butterfly habitat, and the cooperation of local private interests in development of management plans should be encouraged.

Details on the plan and its implementation can be obtained from the Portland Regional Director. (see page 2 for address).

Schaus' Swallowtail Butterfly

The Schaus swallowtail butterfly is known only from the southeastern tip of the Florida peninsula and the Florida keys, where it has always been considered rare and locally distributed. It was listed as Threatened under the Endangered Species Act in 1976.

Specific habitat requirements for the butterfly are unknown, although its

Continued on page 5

Photo by George Krizek

Schaus' swallowtail butterfly is known only from the southeastern tip of the Florida peninsula and the Florida keys.

Threat to California Least Tern Defused by Coordination

by Jack Fancher
Division of Ecological Services
Laguna Niguel (California) Field Office

In two successive nesting seasons, the California least tern has abandoned a protected and managed nesting area on Terminal Island, Los Angles Harbor, in favor of nearby areas used by an Army Corps of Engineers contractor working on the Los Angeles Harbor Deepening Project (LAHDP). Only by close interagency coordination, often on short notice, have significant adverse impacts to the least tern been avoided. Significant projects cost escalation, shutdowns, and delays also have been avoided.

The California least tern was listed as Endangered in 1970. At that time, the population had declined to about 600 pairs, primarily due to nest site disruption and loss by human activities. It typically nests in coastal California from April through August, and returns to Central and South America to overwinter. Between 1970 and 1977, the least tern has nested at several locations on Terminal Island, reaching a peak of 85 nests with very good fledgling success in 1977.

The Corps of Engineers plans for the LAHDP included deepening the port's main channel and disposing the dredge spoil into a 190-acre area of harbor waters to create new land. In a 1978 biological opinion, the Service concluded that the proposed project would jeopardize the California least tern, primarily due to the filling of foraging areas near the nest sites and inadequate protection of these sites. Project plan revisions and a Corps-Service agreement resulted in a no-jeopardy opinion in 1979. Slight modifications were made in the proposed shape of the landfill and the timing of construction. A harbor water area was also to be altered to improve its value for least tern foraging. In addition, the agreement provided for least tern nesting areas on Terminal Island, and for a 7-year investigation of the bird's nesting and foraging ecology.

The protection and management of a 15-acre nesting area on Terminal Island began in 1979, concurrent with the study, and the actual project construction began in 1980. However, the least tern did not nest on Terminal Island during those 2 years. As allowed for in the agreement, the study then focused on other Los Angeles and Orange County nesting colonies. By 1981, the 15 acres had been fenced, cleared of weeds, covered with a veneer of sand, and arrayed with least tern decoys. That year, the terns did use the site. About 13 pairs were nesting there when, in June 1981, the colony was abandoned. Eggs and small chicks disappeared, indicating that rats and crows were the likely predators.

The California least terns began renesting at an unprotected, dusty, weed-dotted area adjacent to the Corps dredge discharge pipe and the landfill construction. This site was being used by the Corps for off-road movement of heavy equipment and dredge pipe sections between the staging area and the work area. It was also used for access to the dredge discharge pipe that ran along its margin. The Harbor Department operated a gravel stockpile operation at the center of the 45-acre tract, and recreational anglers crossed the area to reach fishing spots.

Immediate action was needed to prevent the destruction of the new least tern nests. An Ecological Services biologist in the Laguna Niguel Field Office began discussions with the Corps' construction manager, the Los Angeles Harbor Department staff, and the California Department of Fish and Game to seek alternatives which would avoid nest site disturbance. As the result of close coordination, heavy equipment was rerouted, the nesting area was posted, and access was curtailed. The nesting area thereby was effectively protected from the gravest threats without interfering with the progress of the construction project. The ongoing open-water discharge of dredge spoil, not far away, offered no apparent impact upon least tern foraging since it occupied a relatively small portion of the bird's known feeding area.

Approximately 46 nesting attempts were made by California least terns at several different sites on Terminal Island in 1981. Some eggs were destroyed inadvertently by vehicles. Many chicks were hatched, but high mortality, due to predation first by crows or rats, then an American kestrel, contributed to poor fledgling success. The powdery dust on the nesting area also may have been a factor. Nevertheless, later observations of banded fledglings at Terminal Island indicated that the site had furnished potential recruits for the adult populations. The third year of the nesting and foraging study documented these events as well as significant findings from other major nesting colonies.

The 1982 California least tern nesting season began with the 190-acre landfill nearly half filled with dredge spoil, but still largely an inter-tidal mud flat with shallow open water. During the preceding winter, the Corps had unintentionally created a sandy knoll within the landfill by overdischarging at one point. This knoll, composed of clean sand and bivalve shell fragments, was above the reach of the tide. The discharge point had later been relocated elsewhere in the landfill, but the tailwaters flowed past the knoll.

Ten pairs of least terns took advantage of the sandy knoll when courtship began. Another ten pairs were observed courting and nest scraping within the 15-acre area, which had again been prepared and decoyed. Simultaneously, a local helicoptor manufacturer was mak-

Photo by D. Echols

California least tern feeding its chicks.

Photo by J. Fancher

The Corps Terminal Island landfill construction in 1982 built up around the least tern nesting area.

ing occasional unauthorized test landings on underdeveloped harbor land areas, including the fenced area and drier portions of the landfill. Using aircraft registration information obtained through the Service's Office of Law Enforcement in Long Beach, Ecological Services personnel were able to contact the helicopter operator and secure his cooperation. Unfortunately, the unwitting disturbances that had already occurred apparently were too much for the terns, as nesting was not reinitiated at the fenced area during the 1982 season.

The nesting colony at the sandy knoll, on the other hand, continued to increase in numbers. Many of the adult terns had been banded in previous years, and some had been observed attempting to nest at other colonies earlier in the 1982 season. Predator problems at other traditionally important Los Angeles and Orange County colonies were causing some adults to reinstitute nesting at the sandy knoll. This site assumed even greater significance to overall least tern recovery when some major colonies in San Diego County suffered from reduced nesting success.

Several potential problems at the sandy knoll were brought to the attention of the Corps' construction manager by our Laguna Niguel staff. As the dredge discharged continued, it would wander unconstrained over the landfill and destroy the area where least terns were nesting. Also, rising water levels threatened to inundate nests. Lastly, direct disturbance by persons and vehicles could cause the birds to abandon the site. Through active and frequent coordination among Service, Corps, and California Fish and Game personnel, each problem was successfully addressed. The nesting colony was posted, vehicle access was curtailed, a weir in the landfill dike was constructed to allow the escape of dredge tailwaters, and training dikes were constructed to divert the discharge away from the knoll. By late July, however, the landfill had been greatly built up and would either encroach upon the nesting area or require sandbagging to protect the nests. Fortunately, the least terns concluded their nesting activities first. Within days of the "all clear" message from the Service, the Corps resumed normal operations, obliterating the vacated nesting area without having incurred any abnormal project delays or expense.

The 1982 least tern nesting activities at Terminal Island were intensively studied by contractors to the Laguna Niguel Field Office. The study recorded more than 70 nests and, although some eggs were lost to one extreme high tide series and some to rats, fledgling success was good.

Banding efforts are yielding results useful in understanding least tern nesting behavior. The studies are also contributing to knowledge of nesting and foraging crucial to the successful management of their nesting areas and, ultimately, to recovery of this Endangered species. Several publications in scientific journals have already resulted from this research. The three remaining years of study called for in the Corps-Service agreement should continue this record of contribution.

Thanks to the consultation framework in Section 7 of the Endangered Species Act, and to the sincere, capable efforts of the people involved, conservation of the Endangered bird was compatible with the harbor project. It is through such efforts that we hope that the California least tern population, estimated at 975 pairs in 1981, will reach the recovery plan goal of 1200 pairs at 20 stable nesting colonies and return from the brink of extinction.

Plans for Butterflies

Continued from page 3

dependence on hardwood hammocks is clear. Major factors affecting changes in population size and distribution are unclear, and it is unknown at what levels population numbers and distribution must be maintained to ensure viability. The recovery plan, therefore, emphasizes habitat protection and research on the species' population biology. Its objective is to prevent the extirpation of *Papilio aristodemus ponceanus* colonies and reestablish colonies where suitable.

During 1980 and 1981, known, confirmed and apparently viable breeding colonies of *P. aristodemus ponceanus* were restricted to a group of islands in Biscayne National Park. Colonies may possibly occur in other areas of the keys, although none is currently known.

Ponceanus numbers have historically been generally low, but fluctuations apparently do occur in large part due to the fact that the chrysalids may overwinter more than one year. In the early 1970's, the species was relatively common in Biscayne National Park, with numbers being especially high during 1972. Since then, however, the population, especially on Key Largo, has apparently been declining.

Three factors are possibly at fault for the severe range constriction and population decline of *ponceanus* during this century, especially since the early 1930's: (1) disruption and destruction of hammocks; (2) widespread aerial application of insecticides by the Monroe County Mosquito Control District; and/or (3) natural factors (weather, predation/parasitism, etc.). Collecting has not been a factor in the past, but will probably be so at the presently small population size. Insecticidal mosquito control may represent the most important and critical of those factors.

The role that habitat alteration has played in *ponceanus* distribution is difficult to determine. The butterfly apparently is now absent from several areas in which hardwood hammocks remain apparently undisturbed. The species may possess relatively subtle habitat requirements which are not yet understood.

The Schaus' swallowtail's primary host, torchwood (*Amyris elemifera* L.; Rutaceae) occurs in hammocks throughout the lower and upper keys and on the Atlantic coast of the mainland northward to Volusia County. Wild lime (*Zanthoxylum fagara* (L.) Sarg.; Rutaceae), a secondary host plant, has an even wider distribution. Given these data, it is clear that the historic range of

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CITES NEWS—November 1982

The Endangered Species Act of 1973, as amended in 1979, designates the Secretary of the Interior as both the Management Authority and the Scientific Authority of the United States, for the purposes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Management Authority responsibilities are delegated to the Associate Director—Federal Assistance; Scientific Authority responsibilities are delegated to the Associate Director—Research.

The Service's Wildlife Permit Office (WPO) functions as staff to the U.S. Management Authority for CITES, assuring that wildlife and plants are exported or imported in compliance with laws for their protection and issuing permits for legal trade of these species. The Service's Office of the Scientific Authority (OSA) functions as staff to the U.S. Scientific Authority for CITES. OSA reviews applications to export and import species protected under CITES, reviews the status of wild animals and plants impacted by trade, makes certain findings concerning housing and care of protected specimens, and advises on trade controls.

CITES Amendments Proposed by Service

Following a review of the status of wildlife and plant species that are native to the United States listed on Appendices I and II of CITES, the Service announced its proposed changes to these Appendices (F.R. 11/17/82). They will be submitted for consideration by the CITES nations at the next regular meeting in Botswana in April 1983.

The Service's review was conducted in coordination with the Canadian Wildlife Service and the Direccion General de la Fauna Silvestre of Mexico. In developing proposals, the Service considered comments and information received in response to earlier notices in the *Federal Register*, and the views of the Central Committee, a group representing various CITES parties organized to appraise and coordinate such reviews.

Candidate Species

The Service's November *Federal Register* rule presents a discussion of the proposals, comments received following earlier notices, and the reasons for the Service's final decisions. A summary of the proposals follows:

- Gray wolf (*Canis lupus*)—The Service proposes to remove Alaskan and Canadian populations of this species from Appendix II. It does not anticipate that this action will create trade problems concerning wolf pelts from other populations since both Alaskan and Canadian Provincial game departments have established tagging and documentation systems.
- Bighorn sheep (*Ovis canadensis*)—The Service proposes to delist (remove from Appendix II) the U.S. and Canadian populations, which are now listed only because of similarity of appearance to the Mexican population. The Service anticipates no trade problems given the strict control of sport hunting in all three countries.
- Grizzly and brown bears (*Ursus arctos*)—The Service proposes to remove North American populations from Appendix II on the grounds that they are listed only for reasons of similarity of appearance, they are protected by State and Federal law in the United States and the Mexican population appears to be extirpated.
- Canadian lynx (*Lynx canadensis*)—The Service proposes to remove the species from Appendix II. The species is under State and Provincial management that should prevent its becoming threatened with extinction by international trade.
- River otter (*Lutra canadensis*)—The Service proposes to list this species in Appendix II for reasons of similarity of

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Regional Briefs

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tained and fed for 7 weeks. The released birds were followed via radio telemetry for 3 days. They were last located heading in a northerly direction. It is hoped that these birds will return to nest in Arkansas when they reach breeding age (4-5 years old). Following this successful first attempt, more eagles will be hacked in the next 2 summers.

The final report, "Status Survey of the Cahaba Shiner and Goldline Darter in the Cahaba River," has been received from Dr. W. Mike Howell, Samford University. This effort fills a data gap which existed along the Cahaba River from Trussville to Booth Ford, Alabama. This information, along with a recently contracted study with the Alabama Geological Survey for a historical water quality analysis of the Cahaba River and information already on hand, should provide the necessary data to make a decision on listing strategies.

The U.S. Army Corps of Engineers Waterways Experiment Station has completed the concept design for artificial gravel bars in the Tombigbee River. This is part of a conservation plan being developed for the Tennessee-Tombigbee Waterway Project and a number of candidate mussel species occurring in the Tombigbee River. The next step would be engineering design, cost estimates, construction, and evaluation.

Region 6—Prior to finding the black-footed ferret (*Mustela nigripes*) population near Meeteetse, Wyoming, in 1981, most research on ferrets had occurred in Mellette County, South Dakota, in the late 1960's and early 1970's. The last confirmed ferret sighting in Mellette County was in 1972. During the summer of 1982, two students from South Dakota State University spent more than 650 man-hours searching for ferret sign in prairie dog towns in Mellette County. They also logged more than 630 man-hours spotlighting for ferrets at night. No conclusive evidence was obtained to indicate that ferrets still exist there.

The Yellowstone Managers Committee met in Jackson, Wyoming, in early November. The management of grizzly bears (*Ursus arctos horribilis*) was a major item of discussion. There is great concern over the number of grizzlies being lost from the population because of human-induced mortality. The grizzly bear population in the Yellowstone ecosystem is estimated to be +200 animals, and the trend is still downward. There may be no more than 30 adult females in the population. Federal land management agencies and State game and fish departments are starting to work together to greatly reduce annual grizzly mortalities caused by humans.

In an effort to retard any genetic drift in greenback cutthroat trout (*Salmo clarki stomias*) broodstock held at Bozeman Fish Cultural Development Center in Montana, milt was taken from wild greenbacks for use in fertilizing some 20,000 ova. Eight hundred greenbacks obtained from this spawn were retained at the center for future broodstock. The remaining fish from this spawn composed part of the 25,500 greenbacks which were released into 7 areas within the species' native range.

An experimental catch-and-keep angling program for the introduced brook trout (*Salvelinus frontinalis*) and a catch-and-release program for the native greenback cutthroat trout within beaver ponds on Hidden Valley Creek (Rocky Mountain National Park) was opened on August 1, 1982. Initial results indicate that greenbacks are extremely susceptible to angling pressure. Anglers released 60 percent of the brook trout and 99.99 percent of the greenbacks.

RULEMAKING ACTION - December 1982

Malheur Wire-Lettuce

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(for zeolites) in the habitat area is not imminent.

An immediate threat to the taxon is competition from weedy grasses, especially the introduced cheat grass *(Bromus tectorum)* with which it competes for moisture in the spring when both species are in seeding stage. Cheat grass invaded the area following a controlled burning in 1972 which accidentally swept the habitat area. Grazing by small herbivores, presumed to be black-tailed jack-rabbits (*Lepus californicus*), is also detrimental to the wire-lettuce.

In 1974, the BLM established a 160-acre Scientific Study Area that includes the habitat area. The study area has been completely fenced, preventing grazing of the species by livestock. The BLM has also monitored the status of *S. malheurensis*.

S. malheurensis is a member of the sunflower family (Asteraceae) and grows to 5 dm tall. It has a basal rosette of leaves, a much branched stem with scale-like leaves, and numerous pink to white (rarely yellow-orange) flower heads. It is an annual species and the numbers of individual plants vary greatly from year to year depending on the amount of precipitation prior to and during the spring growing season. It flowers in July and August.

The first discovery of *S. malheurensis* was made in 1966, when seeds of this species were collected along with those from a population of the parental plant, *S. exigua* ssp. *coronaria*. Both taxa are found together, at the northern end of the range of the parental subspecies.

Studies by Dr. Leslie Gottlieb of the University of California, Davis, have demonstrated consistently distinguishable field characteristics, physiological differences, and reproductive isolation between these two taxa, thus recognizing *S. malheurensis* as a new species. It has been considered of significant scientific and educational value in understanding the processes of speciation, especially the sympatric evolution of a diploid species.

Regulatory History

This plant was first proposed by the Service for protection under the Act on June 16, 1976. Because the Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn, the Service published a notice of withdrawal that included this plant on December 10, 1979.

In August 1980 new field work was carried out at the site of the *S. malheurensis*. It was discovered that the exotic cheat grass had heavily invaded the area. Only fewer than several dozen wire-lettuce plants could be found after a diligent search. Previously as many as 750 individuals of *S. malheurensis* were estimated to have grown at the site in any one year. On October 31, 1980, the Service published a second proposed rule on the plant, advising that sufficient new information was on file to repropose the *Stephanomeria*. Critical Habitat was also proposed on October 31, 1980, for the first time.

This listing took advantage of a provision of the Endangered Species Act Amendments of 1982, which extended the deadline for a final rule from October 31, 1982 to October 13, 1983. The 1982 Amendments state that all species in proposed status at the time the new legislation was signed are to be treated as if proposed on the date of enactment of these amendments, October 13, 1982.

New Series to Clarify Wildlife Permitting Procedures

In recent years the U.S. government seized annually around 2,000 wildlife shipments which failed to meet permit requirements. In an effort to reduce that number, the Association of Systematics Collections (ASC), with the assistance of the Service's Federal Wildlife Permit Office and the Pet Industry Joint Advisory Council, has begun production of a reference series that will provide a simple, streamlined source of permit information for those who routinely deal with wildlife and wildlife products such as furs, leather and ivory.

The series, *Controlled Wildlife*, will serve the need of both industry and government for a single, comprehensive source of information on the regulations, permits and agencies that make up our national wildlife policy. The series is divided into three volumes.

The first volume, *Federal Permit Procedures*, contains detailed summaries of the Federal statutes and regulations that control the use of wildlife and wildlife products; samples of both foreign and domestic permits, with instructions for completing them properly; and addresses of important agencies, both foreign and domestic.

Volume two, *Federally Controlled Species*, lists the species that are controlled by the Federal government and the laws that govern their use.

State Permit Procedures 1983, the third volume in the series, will contain information on State non-game wildlife laws and permit requirements, cooperative agreements between the Federal government and individual States, and lists of species protected by each State.

In addition, an *Updating Service* will be included to keep purchasers advised of changes in regulations and procedures.

The work of compiling and organizing this data is being performed by the ASC, a non-profit association of natural history museums and scientific societies. Work has already begun on the first two volumes, which are scheduled for publication in January 1983. The third volume will be published in April 1983.

For further information write: CONTROLLED WILDLIFE, Association of Systematics Collections, Museum of Natural History, University of Kansas, Lawrence, KS 66045.

Plans for Butterflies

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ponceanus has not been limited by the range of these two host plants.

Nearly all *ponceanus* sightings and collections have been concentrated from late April through mid-July, with most occurring during May, suggesting that the butterfly has but a single annual generation. Occasional adults are found in late July through September.

For more information on the Schaus' Swallowtail Butterfly Recovery Plan, contact the Atlanta Regional Director (see page 2 for address).

Puerto Rican Parrot

The October 1982 BULLETIN included a feature on the Puerto Rican parrot (*Amazona vittata*). Please refer to this article for information on research and recovery efforts for this bird.

* * *

Copies of these plans, and of all approved recovery plans, will be made available for purchase from the Fish and Wildlife Reference Service, Unit i, 3840 York Street, Denver, Colorado 80205 (800/525-3426). A four-to-six month printing time must be allowed following the date a recovery plan is approved by the Director. Please understand that you might experience a delay when ordering newly approved plans.

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CITES NEWS

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appearance, only. It is now listed because of potential threat to its survival from international trade, as well. Biological data are sufficent to show that the species is not potentially threatened with extinction by international trade.

- Tule white-fronted goose (*Anser albifrons gambelli*)—The Service proposes to remove this subspecies from Appendix II because it is not readily distinguishable from the more common white-fronted goose, *A. albifrons frontalis*, and because it is given as much protection from overexploitation from trade as possible under existing Migratory Bird Treaties.

- **Mona Island boa and Virgin Islands boa** (*Epicrates monensis*)—The Service proposes to transfer these snakes from Appendix II to Appendix I on the grounds that both subspecies (*E. monensis monensis* on Mona Island and *E. monensis granti* on the Virgin Islands) are threatened with extinction and they are similar in appearance to the Puerto Rican boa (*E. inornatus*), which is listed in Appendix I.

- Blue pike (*Stizostedion vitreum glaucum*)—The Service proposes to remove this subspecies from Appendix I because no specimens have been found since 1965 despite extensive sampling of fish stocks. The Service has proposed to delist the fish under the Act (see June 1982 BULLETIN).

- Longjaw cisco (*Coregonus alpenae*)—The Service proposes to remove this species from Appendix I because it is likely extinct. This fish was also proposed to be delisted under the Act (see June 1982 BULLETIN).

BOX SCORE OF SPECIES LISTINGS

Category	ENDANGERED U.S. Only	ENDANGERED U.S. & Foreign	ENDANGERED Foreign Only	THREATENED U.S. Only	THREATENED U.S. & Foreign	THREATENED Foreign Only	SPECIES* TOTAL
Mammals	15	18	223	3	0	22	281
Birds	52	14	144	3	0	0	213
Reptiles	8	6	55	8	4	0	81
Amphibians	5	0	8	3	0	0	16
Fishes	28	4	11	12	0	0	55
Snails	3	0	1	5	0	0	9
Clams	23	0	2	0	0	0	25
Crustaceans	2	0	0	1	0	0	3
Insects	7	0	0	4	2	0	13
Plants	56	2	0	8	1	2	67
TOTAL	199	44	444	47	7	24	765

*Separate populations of a species, listed both as Endangered and Threatened, are tallied twice. Species which are thus accounted for are the gray wolf, bald eagle, American alligator, green sea turtle, and Olive ridley sea turtle.

Number of species currently proposed: 3 animals
6 plants

Number of Critical Habitats listed: 54
Number of Recovery Teams appointed: 69
Number of Recovery Plans approved: 71
Number of Cooperative Agreements signed with States:

38 fish & wildlife
11 plants

November 30, 1982

- North American cacti (Family Cactaceae) —The Service proposes to transfer 71 taxa of cacti native to the U.S. or Mexico, or both, from Appendix II to Appendix I on the grounds that their wild populations are so rare or depleted they are actually or potentially threatened by international trade. The original proposal contained 119 taxa to be transferred. However, a number of Mexican taxa were deleted because of insufficient population data or because it appears that the species is more common than initially thought.

- Luquillo Mountains Lepanthes (*Lepanthes eltoroensis* Stinson, Family Orchidaceae)—The Service proposes to transfer this orchid from Appendix II to Appendix I because of taking of this plant from its very restricted habitat.

- Solanum "sylvestre" (family Solonaceae)—The Service proposes to remove this name from Appendix II on the grounds that the name is untraceable in the modern literature and never has been used or validly published as a scientific name.

The Service has decided not to propose changes included in the original proposal concerning the swift fox (*Vulpes velox*) and the pronghorn antelope (*Antilocapra americana*).

Copies of the proposals are available upon request from the Office of the Scientific Authority, U.S. Fish and Wildlife Service, Washington, D.C. 20240. Please send correspondence regarding these proposals to the same address.

December 1982 Vol. VII No. 12

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Technical Bulletin

Department of Interior, U.S. Fish and Wildlife Service
Endangered Species Program, Washington, D.C. 20240

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